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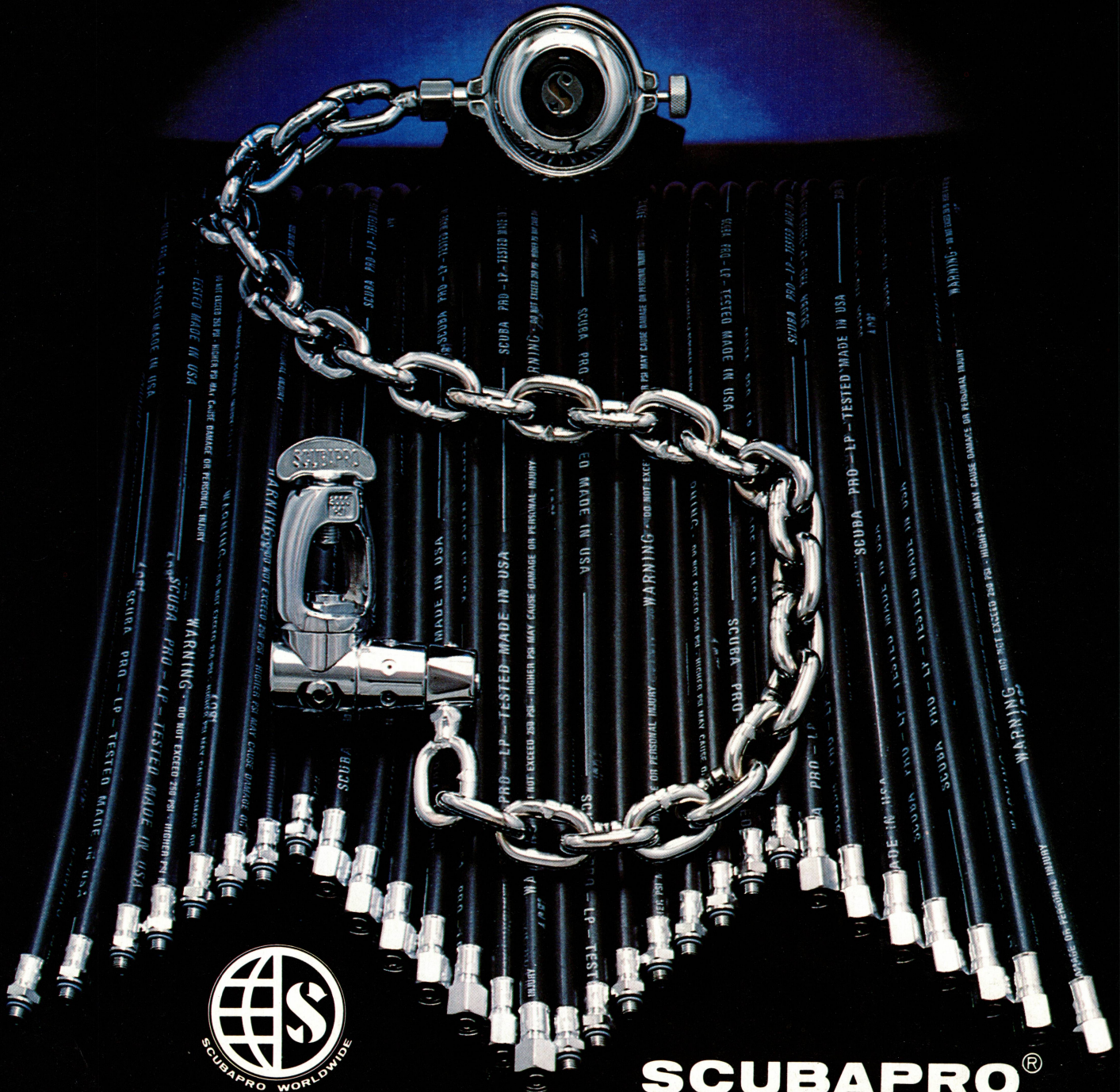
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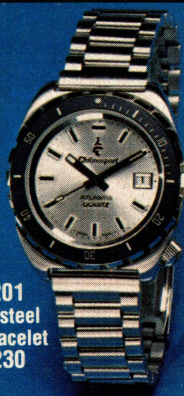


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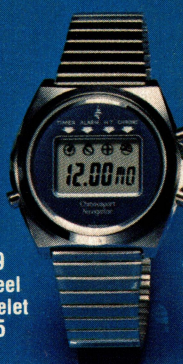
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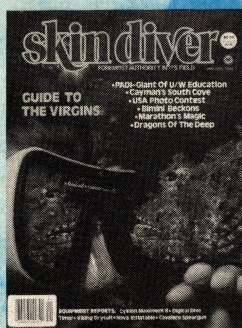
# skindiver

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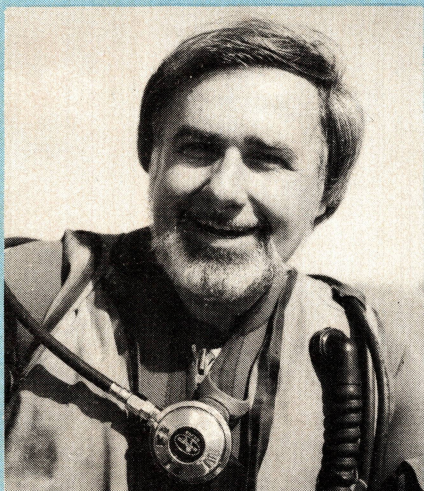
*A scorpionfish observes its reflection in a diver's facemask. While not aggressive, these animals have spines which can inflict a painful wound. For more on this interesting fish see page 22. Photo/Geri Murphy.*

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# SDM Editorial

BY THE PUBLISHER



## SMOKING: OXYGEN STARVATION FROM WITHIN

the lungs and distributes it to the hard-working muscles. On the return trip, it brings back carbon dioxide. A new scuba student devotes many pool and ocean training sessions to improving the physical fitness of his/her heart and lungs so that there is a more efficient delivery of oxygen-laden blood. A diver with a weak circulatory system is in trouble.

Smoking robs your body of much-needed, life-giving oxygen and thereby starves your muscles and tissues, causing severely reduced performance. Heavy smoking can cancel all the benefits which a person would normally receive from daily exercise, swimming and physical fitness training. Research performed by respiratory physiologists indicates a smoker's circulatory functions are often decreased by 15 to 18 percent. It is this deprivation of oxygen which not only reduces the diver's strength and stamina, but can also lead to overexertion, involuntary hyperventilation and possibly unconsciousness. A smoking diver is a setup for an underwater accident, for you have all the ingredients needed for a classic case of panic.


How does this happen? The culprit is a nasty character called carbon monoxide. The combustion or burning of an organic material, such as tobacco, produces carbon monoxide in surprising amounts. It is the same lethal gas found in automobile engine exhaust and can produce unconsciousness and death. Air pollution standards indicate it is dangerous to breathe air containing a carbon monoxide level higher than 100 parts per million, and air purity standards for scuba diving indicate that anything more than ten parts per million is dangerous. Yet, cigarette smoke can produce an incredibly high carbon monoxide level of 42,000 parts per million. Normal walking or sitting might not reveal any problems with this increased carbon monoxide uptake, but it could prove devastating while swimming at depth.

What does carbon monoxide do to your body? It is a well-known medical fact that hemoglobin has a tremendously high affinity for carbon monoxide—210 times greater than its attraction for oxygen. Once carbon monoxide has entered the lungs and passed through the walls of the alveoli, it bonds itself with the hemoglobin in the bloodstream, much like iron filings stuck to a strong magnet. Once hemoglobin is loaded with carbon mon-

oxide, there is no place for oxygen and the blood's capacity for carrying it becomes severely reduced. It takes more blood and a harder-pumping heart to overcome the effects of smoking. This condition generally goes unnoticed until the diver begins swimming hard at depth, thus causing his large leg and thigh muscles to work at peak capacity. Because of the reduced amount of oxygen flowing through the blood, the muscles tire quickly and the diver begins to huff and puff. He or she then nears panic as his/her lungs desperately try to force more oxygen through arteries which are loaded with carbon monoxide. Oxygen deprivation at depth can be one of the most serious problems facing a diver.

To complicate matters, we find that the effects of carbon monoxide absorption are surprisingly long lasting. It takes the body six hours to reduce the level of carbon monoxide by 50 percent, and traces of this contaminant can remain for 24 hours or more. If divers wanted to completely purge their bodies of carbon monoxide for a dive trip, they should not take a puff for at least two days prior to the event, and abstain from smoking until six hours after the dive, so that decompression functions can go unhampered.

If this isn't enough to convince you to quit, let's consider still another serious hazard linked to smoking. Apparently the nicotine and tar substances in tobacco smoke are potent irritants to the respiratory tract and sensitive lung tissue. Heavy smokers often awaken with a morning cough and spit up sizable quantities of mucus. This should be an obvious clue. It has now been discovered that smokers often develop small airway obstructions following minor respiratory infections such as the common cold. These obstructions or plugged-up passageways can often last for more than a month after the outward symptoms of the cold have passed. Such obstructions within the fragile tissue of the lungs can pose a lethal hazard to the scuba diver during ascent from depth. Should the air passage become clogged with mucus or collapse from pressure buildup, an air embolism could easily result.

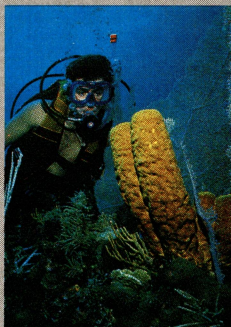
Considering the volume of evidence presented by medical researchers, it would appear that divers have little choice in the matter. If a person wishes to pursue the sport of diving, he or she should consider giving up smoking. 

**D**own deep, most smokers realize they shouldn't smoke, but they find it very difficult to quit. Many rationalize, thinking they can always quit if their smoking causes any medical problems. When you're young and healthy, lung cancer and heart disease seem to be a long way off. These are the diseases of old age, and maybe you'll quit smoking when you reach 40. Until then, maybe you can get by with a few more days, weeks, or years of smoking.

There is no choice for the diver. He or she should quit smoking right now—or consider giving up diving. The hazards confronting a smoking diver are much more immediate and potentially more lethal. Mixing smoking with diving is just about as risky as drinking alcohol and flying a plane. Among the dangers which can be induced by smoking are such physiological problems as: involuntary hyperventilation, overexhaustion, lung overpressure and maybe even air embolism. The scariest part of this is that it happens inside the body: You can't see it, and, you probably won't realize what's happening until it's too late.

Every diver who has ever gone through a basic scuba class knows what a tremendously important role the respiratory and circulatory systems of the body play in diving. The heart and lungs are some of the most important organs in a diver's body and they are linked together with the rest of the muscles and tissues by the circulatory system. The blood which courses through your veins and arteries is the key mechanism for life, for this is the delivery vehicle for transporting that life-giving supply of oxygen to big muscles in the legs, thighs and arms. Like microscopic boxcars, the hemoglobin in the blood stream picks up fresh oxygen at





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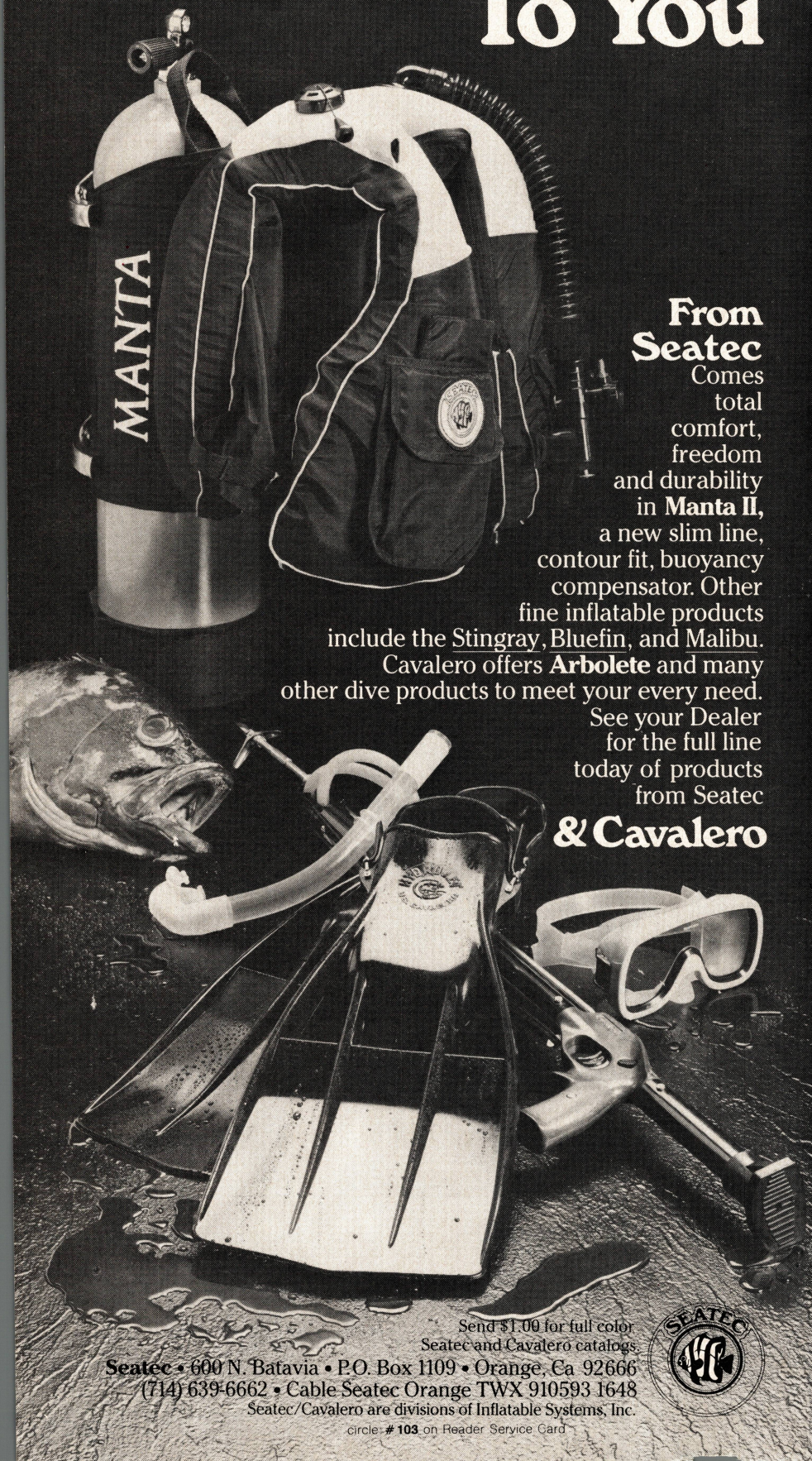
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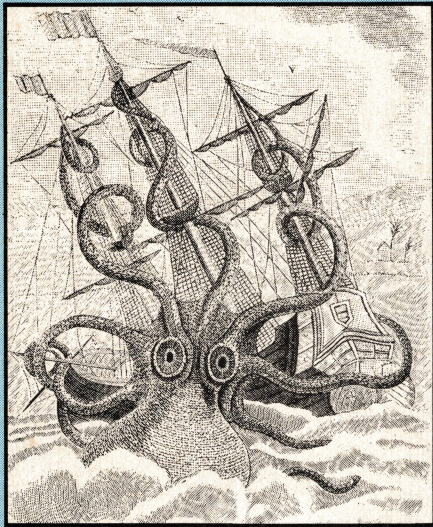


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# Wreck Facts



BY ELLSWORTH BOYD

It was bound to come and shipwreck divers are welcoming it with open arms: the Atlantic Alliance for Maritime Heritage Conservation, a group that will protect the rights of shipwreck divers against an asinine string of proposed government bills that would thwart our democratic ideals and system of free enterprise.

Thirty-five representatives met in Arlington, Virginia in late September: divers, attorneys, lobbyists, archaeologists, historians, scientists, salvors, journalists and dive shop owners, to map the strategy for the formation of an alliance that has the potential of becoming one of the strongest arms of diving in the United States today. Dan Koski-Karell, research consultant, marine surveyor and chairman of the National Council on Underwater Archaeology—one of seven committees formed under the Atlantic Alliance—says, "First we must focus on H.R. 69, H.R. 3194, and S-1504; unnecessary anti-shipwreck salvage legislation that needs much more study. Proper distribution and study of these bills is being totally ignored by the bureaucrats who are proposing them. The bills are too complex and far-reaching to be originated so quickly and then be pushed through committees in the same haphazard manner. The Atlantic Alliance for Maritime Heritage Conservation must try to put a hold on these bills, demanding detailed study of them. The bills need methodical analysis which they are *not* getting.

"Everything appears to be rush, rush and if passed, the bills will be monopolized by the bureaucrats and divers will be banned from the wrecks they discovered in the first place! Some of the bureaucrats have created a boogeyman

under the guise of looting. There is no pilaging and looting going on, but that's what some of the proponents of these bills would like the public to believe. Salvors are willing to work within an archaeological framework, executing proper recovery techniques and preservation processes . . ."

The National Council, under the auspices of the Atlantic Alliance, proceeded to adopt the following resolutions regarding H.R. 3194: "That the fields of maritime history and underwater archaeology are best benefited when all endeavors promoting their advancement are encouraged and unencumbered by burdensome and unnecessary laws, rules and regulations. Therefore be it resolved that the United States Congress should table any pending legislation which is aimed at restricting, controlling or otherwise inhibiting underwater archaeological and maritime historical research which is voluntarily undertaken by the people of the United States, whether they are acting in either professional or avocational capacities."

The council further resolved that recent shipwreck excavation under the federal court's Laws of Admiralty has benefited underwater archaeology and maritime history and should be continued. The resolution also chastised information given to Congress that distorts legitimate work being done in underwater archaeology and historic preservation. The resolutions were presented to the U.S. House of Representatives' Merchant Marine and Fisheries Committee (Subcommittee on Oceanography).

The Atlantic Alliance will make a strong bid to continue backing the present legal structure of Admiralty Law in Federal District Courts. David P. Horan, world renowned Admiralty Law attorney and champion of Cobb Coin Company's victory over Florida in the Supreme Court, said, "If the current legislative proposals are passed, they would divest the Federal District Courts of their historic and constitutional jurisdiction over admiralty and maritime claims. The Federal District Courts were given exclusive claims under Article 2, Section 3 of the United States Constitution. The effect of such legislation, even if constitutional, would have far-reaching effects on both sport diving and salvage. Each state would be free to claim title to and possession of each and every shipwreck that sinks in its waters.

"State bureaucracies and legislative schemes claiming such ownership have heretofore been invalidated by the Federal Admiralty Courts because of the irreconcilable conflict with the established maritime law of salvage. Any attempts to replace our time-proven uniform maritime law should be carefully considered because the chaotic results could prove extremely deleterious to our nation's maritime commerce and to the archaeological and historical resource represented by such wrecks."

Treasure salvor Mel Fisher verified

Horan's recommendations to the Alliance. Fisher said, "I'm all for government control on shipwrecks. Our forefathers created Admiralty Law, therefore we don't need any new laws. Admiralty Law is just and fair to all parties concerned. It protects me from pirates via Coast Guard surveillance. States have no jurisdiction in Admiralty Law and our Alliance should continue to strive for this."

Marine archaeologist Duncan Mathewson, chairman of the Atlantic Alliance, summed up other major objectives of the organization. "I'd like to get the politics out of shipwreck diving," he said. "Divers have such a massive bank of shipwreck information and I think we can use this to open communications among the states. Let's share our knowledge by talking with archaeologists in various states in an attempt to unite divers, historians and archaeologists for a common cause. We've already started that today by having Tyler Bastian, Maryland state archaeologist with us.

"The latest polls on diving show that shipwreck exploration is the most popular form of underwater activity. Are these vast numbers of divers in this for fun and adventure or treasure and artifact retrieval? Most are fun and adventure oriented. Yes, there are salvors who want to bring up artifacts from old wrecks and they don't have to be archaeologists to do it the right way. Through our organization, we'll help educate divers *if* they want to learn. For instance, we will teach them how to map a vessel and its break-up. Mapping is easy. Sport divers can learn it as part of survey and assessment of shipwrecks. They can learn how to preserve artifacts too. Some already know how to do this. The states don't have the funds to pay their officials to go out and map all the wrecks, so why not ask qualified sport divers to volunteer to do this? I would like to set up, through our alliance, workshops to teach divers how to do it all. It's easy and it's fun. At the same time it promotes conservation and appreciation of our marine heritage.

"We are a steering body, an umbrella covering active participation in projects over a wide spectrum of maritime interests. We can offer advice and set up workshops. We can give state archaeologists an offer they can't refuse. For instance, if a dive club wants to go out and survey an old freighter, they want to identify it, date it, trace its history and exchange information and knowledge about the wreck. They are offering public participation for the advancement of maritime history. This would be difficult to refuse. I think most state officials would be pleased that the public sector, sport divers in this case, is interested in history, conservation and preservation."

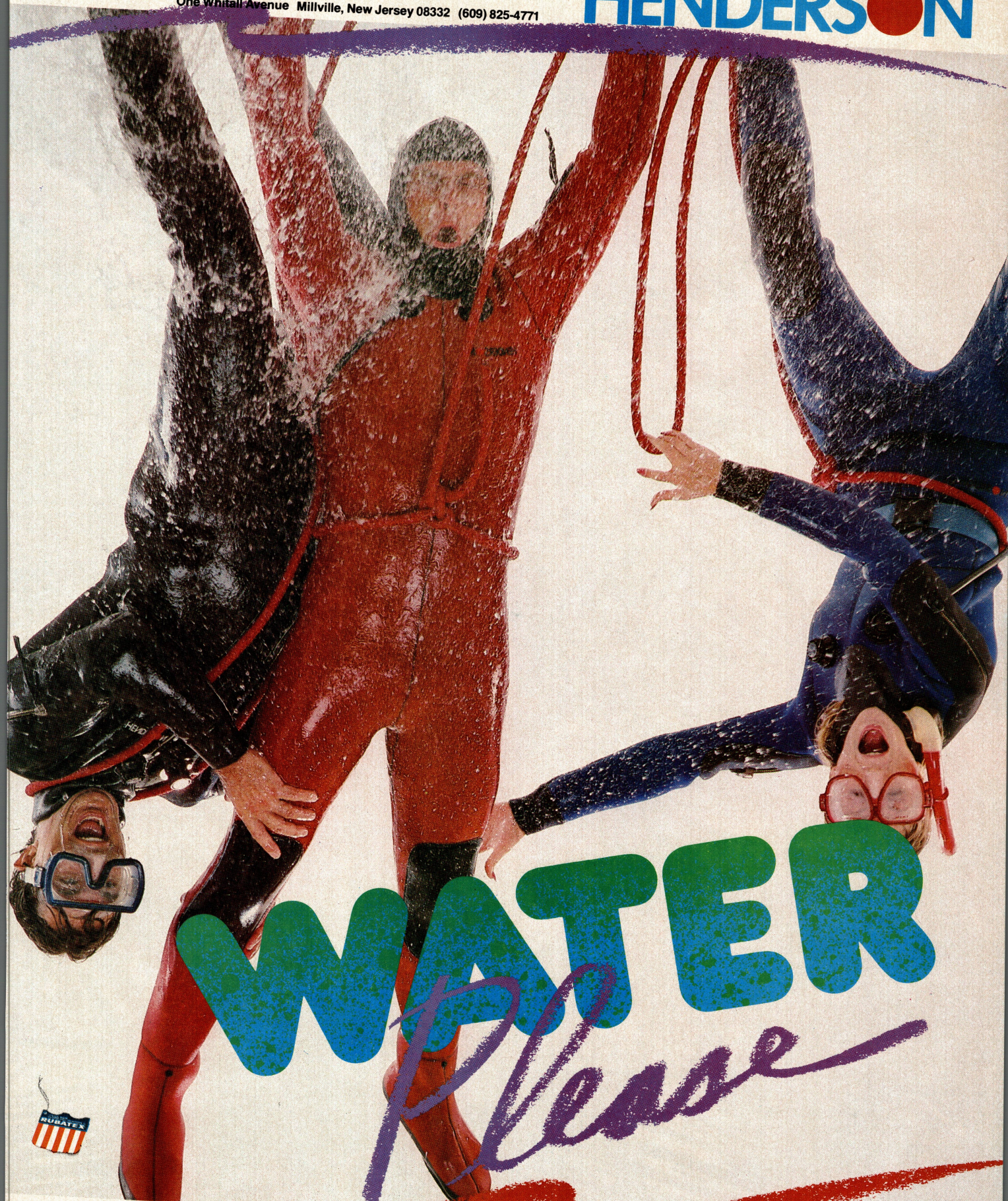
Charles McKinney, executive director of the Atlantic Alliance, made an astute summary statement. "Basically," he said, "the Alliance is a coalition for victory,

*(Continued on Page 50)*



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# Scuba Quiz

## Category: Diving Safety

By Dennis Graver

**How safe are you as a diver? This self-evaluation quiz serves as a review of safety practices and allows you to rate yourself on the topic. Additionally, it reminds us of actions which should be taken or avoided. Check the response for each statement that best describes your usual conduct, then turn the page to see how you rate in comparison to the average diver. Be honest with yourself.**

Indicate the frequency with which you:	Never	Seldom	Usually	Always
1. Exercise regularly to maintain fitness for diving	_____	_____	_____	_____
2. Practice and review basic diving skills	_____	_____	_____	_____
3. Practice and review diving emergency procedures	_____	_____	_____	_____
4. Upgrade your knowledge and certification level	_____	_____	_____	_____
5. Dive with a buddy and remain together underwater	_____	_____	_____	_____
6. End a dive at a predetermined point	_____	_____	_____	_____
7. Inspect your equipment prior to going diving	_____	_____	_____	_____
8. Inspect your buddy's equipment before a dive	_____	_____	_____	_____
9. Learn and review first aid and CPR skills	_____	_____	_____	_____
10. Have your equipment serviced as recommended	_____	_____	_____	_____
11. Fly the dive flag while diving	_____	_____	_____	_____
12. Are confident of a dive and dive within your abilities	_____	_____	_____	_____
13. Abort a dive when conditions are unfavorable	_____	_____	_____	_____
14. Get an orientation to a new dive site	_____	_____	_____	_____
15. Plan a dive with your buddy	_____	_____	_____	_____
16. Dive your plan	_____	_____	_____	_____
17. Make a safety decompression stop at the end of a dive	_____	_____	_____	_____
18. Acquire local emergency contact information	_____	_____	_____	_____
19. Dive neutrally weighted	_____	_____	_____	_____
20. Surface when unable to locate your buddy	_____	_____	_____	_____
21. End a dive with more than 300 psi in your tank	_____	_____	_____	_____
22. Dive with back-up equipment for out-of-air situations	_____	_____	_____	_____
23. Keep an accurate record of bottom time and depth	_____	_____	_____	_____
24. Dive with watch, depth gauge, compass and SPG	_____	_____	_____	_____
25. Rinse and store equipment properly	_____	_____	_____	_____
26. Consult the dive tables before a dive	_____	_____	_____	_____
27. Consult the weather/water conditions before a dive	_____	_____	_____	_____
28. Dive within the no-decompression limits	_____	_____	_____	_____
29. Avoid diving under the influence of alcohol or drugs	_____	_____	_____	_____
30. Avoid ascending faster than 60 feet per minute	_____	_____	_____	_____
31. Dive with an ailment such as a cold	_____	_____	_____	_____
32. Dive deeper than qualified or over 130 feet	_____	_____	_____	_____
33. Push the dive tables to the limit	_____	_____	_____	_____
34. Force equalization of ears or sinuses	_____	_____	_____	_____
35. Experience air starvation from overexertion U/W	_____	_____	_____	_____
36. Dive with a broken or missing item of equipment	_____	_____	_____	_____
37. Skip-breathe to extend your air supply	_____	_____	_____	_____
38. Make planned decompression dives	_____	_____	_____	_____
39. End a dive down current from planned exit point	_____	_____	_____	_____
40. Make planned decompression dives	_____	_____	_____	_____



# Scuba Quiz

## Category: Diving Safety

### EVALUATION

Rate yourself as follows: Draw a line between questions 30 and 31. For questions 1 through 30, count the number of Always responses and credit yourself with four points for each. Usually responses count two points, and Seldom responses one point. No points are received for a Never answer. Questions 31 through 40 are scored in reverse. An Always is zero points, a Usually is one, a Seldom is two, and a Never is four points. Total your points for the quiz, then compare them to the following chart:

- 81 points or more—Extremely safe dive practices.
- 71-80 points—Very safety conscious diver.
- 61-70 points—Average diver. Takes some risks
- 55-60 points—Daring diver. Should reconsider practices.
- 49-54 points—Probable accident candidate.
- 48 points or less—An accident waiting for a place to happen!

Recommendations regarding safe diving practices:

1. We need to be prepared to dive—physically, mentally and logistically. Regular exercise—doing something that approximates diving—is important to maintain fitness. Our equipment must be periodically serviced and well maintained. We must feel confident of our ability to make a dive. Readiness and planning are essentials for a safe dive.

2. Being prepared to handle problems is a necessity. Reviewing skills and emergency procedures periodically is recommended. Back-up equipment for out-of-air situations is highly desirable. Buddies should discuss and agree upon emergency procedures before diving. Training in first aid and CPR are also recommended. Inspect each other's equipment and be familiar with its operation. Dive together, decreasing separation distance as depth increases. Reunite when separated. Assist and remind one another. Make diving a sharing, caring experience for maximum enjoyment and safety.

3. Know your buddy.

4. Be familiar with the dive tables and consult them on all dives deeper than 30 feet. Limit depth according to your training and experience, but never more than 130 feet. Ascend at the proper rate (most divers do not). Allow a margin of safety. Make a short decompression stop at 10 feet as a safety precaution at the end of each dive, then add the decompression time to your bottom time as a further margin of safety.

5. Know the dive site or get an orientation. Evaluate conditions before each dive and abort the dive if conditions are hazardous. Have local emergency contact information. Check weather and water forecasts in advance. Know the area hazards and how to avoid problems. Respect the environment.

6. Dive wisely and conservatively. Stick to agreed upon plans. Think ahead. Be aware and consult instruments frequently. Fly the dive flag and dive nearby. Terminate diving activities when cold or tired. End your dive near the exit point and with air in your tank. Don't dive overweighted.

7. Breathe properly. Avoid overexertion in and under the water. Skip-breathing and scuba breath-holding must also be avoided. If in difficulty, stop all activity, breathe or attempt to breathe, analyze the situation, then, calmly follow a plan.

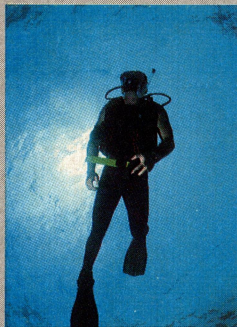
8. Don't dive when ill and don't force equalization. Permanent damage may result. Equalize pressure in the ears every few feet during descents.

9. Be trained for special activities or environments. Complete a refresher course every couple of years. Participate in continuing education courses in diving to increase ability, confidence and enjoyment. Keep current on new developments by reading magazines and books and by attending programs.

10. Equipment needs to be well maintained, frequently inspected and periodically serviced. All needed equipment should be used for a dive. Don't attempt to improvise for a missing item. Diving equipment should not be loaned to anyone not certified to dive.

*Diving safety is more of an attitude than anything else. The way we feel about safety affects our thoughts on the topic, which—in turn—determine our actions. A basic desire to follow established safety practices is a necessary component. Once we want to dive safely, doing so is simply a matter of learning what to do and what not to do and putting it into practice. Knowledge and the proper application of the knowledge yield the fruits of safe, enjoyable dives. One need not be a safety nut and wear hard-toed booties to be safe. Much of diving safety is common sense. Another large portion of safety is the developing of habits and routines. Procedures such as equipment inspections, gear checks, instrument monitoring, etc. can become so routine that they require no conscious effort. The key is to do the things that should be done until they become habitual. Then safety becomes part of normal operations and doesn't detract from a wonderful recreational activity. May we all reach the point where both safety and enjoyment can be maximized continually.*





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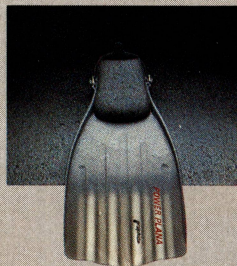
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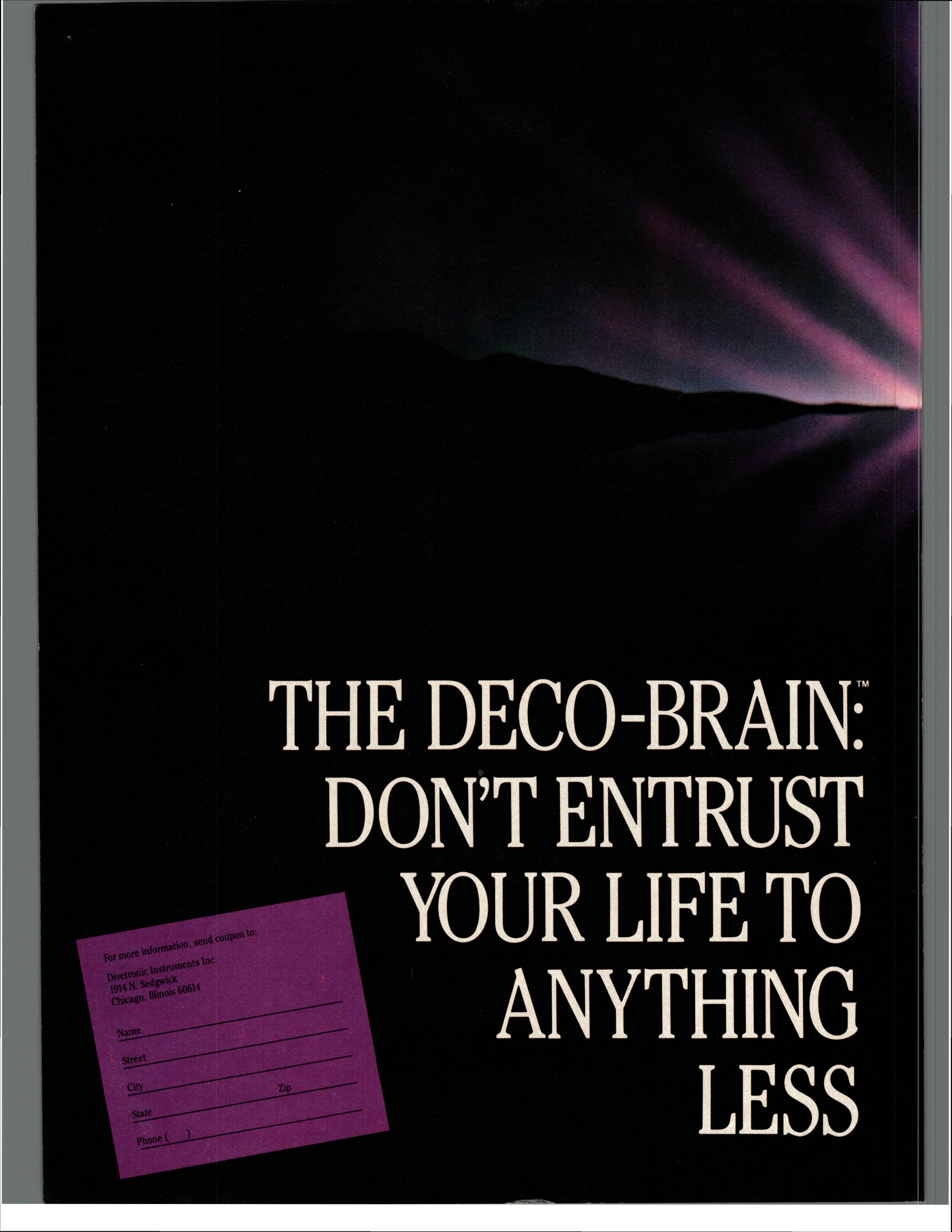
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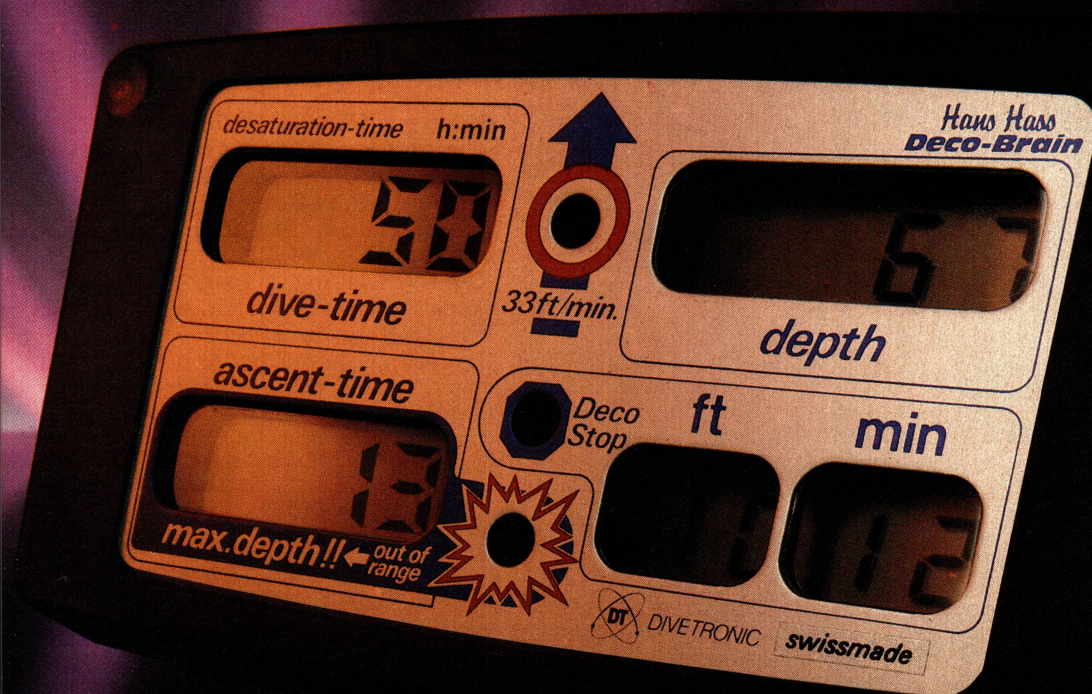
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**January 1** The 19th Annual Frozen Fins Dive sponsored by the South Eastern Connecticut Divers (SE-CONN) at New London Town Beach, New London, CT. Certified divers only. (Contact: Brian Johnson (203) 599-3484)

**January 7-14** Annual Temple University Diving Medicine Course for physicians at the Grand Cayman Holiday Inn, Grand Cayman. Course will review basic diving medicine and marine toxicology plus sessions on using hyperbaric oxygen. (Contact: Continuing Education, Temple University Medical School, Philadelphia, PA 19140)

**February 11** Tenth Annual Aid Dive, sponsored by the Underwater Association, Kitchner-Waterloo & District, Elmira, Ontario, Canada, at the Elora Quarry. (Contact: Jeff Buckingham (519) 579-6771)

**February 12** Ice breaker '84 sponsored by the United Divers of Central Mass. at Lake Quinsigamond, Rt. 9, Worcester MA. Fund raiser to benefit the Copping School for Handicapped Children. (Contact: Paul Mathieu, 81 Canterbury St. Worcester, MA 01603)

**March 10** Boston Sea Rovers '84, 30th Annual Underwater Clinic. Day program at the Boston Park Plaza Hotel and night program accross the street at John Hancock Hall. (Contact: Bunky Hodge, 174 Beech St., Rockland, MA 02370)

**March 31** Underwater New York—13th Annual Diving Symposium, sponsored by the New York State Divers Association. Exhibits, artifacts, speakers, photo contest, wrokshops. (Contact: Peter Odell, 81 Steel St., Auburn, NY 13021, (315) 255-1041; or Terry Hoffman, Standart Woods, B14, Auburn, NY, (315) 252-2320)

**April 7** Ken Read Memorial Underwater Photography Contest. Categories for macro and normal/wide-angle slides. Winners announced at Underwater '84, April 28. (Contact: Bob Pantzer, 171 Whitcomb Ave., Littleton, MA 01460)

**April 27-29** 18th Annual Greater NYC Underwater Exposition—Beneath The Sea (formerly Dive to Adventure), at the White Plains Hotel and Marymount College. Seminars, workshops, special events and exhibits. (Contact: BTS, P.O. Box 644, Rye, NY 10580 or A. Zigahn (914) 961-2088)

**April 28** Underwater '84 symposium, Copley Plaza Hotel, Boston, MA. Underwater film review at John Hancock Hall. (Contact: Fred Calhoun, P.O. Box 291, Back Bay Annex, Boston, MA 02117)



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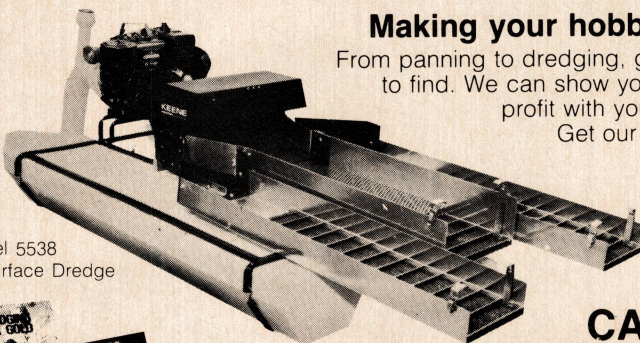
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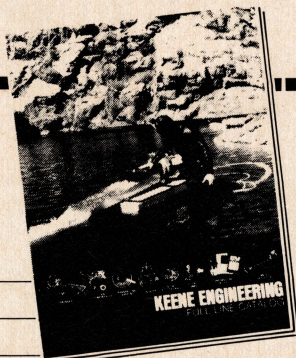
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## DAN SEEKS VOLUNTEERS

In August, DAN became a membership association to provide diving safety information on a larger scale. For \$10, a diver receives a diving accident manual, membership card and tank decals with the DAN phone number and a newsletter that discusses diving safety information.

In November DAN began two new programs to bring divers closer to resources for diving safety information. In the first program, prominent people active in the diving community are being sought to assist headquarters and regional coordinators to inform the diving public about DAN. These new positions, called DAN associate coordinators, are being sought for every state and major city in the nation. Suggested qualifications are enthusiasm for diving safety, prominence in the local diving community and participation in local diving events. Nominations are accepted by headquarters and jointly approved by it and regional coordinators.

The second program seeks to build closer collaboration between diving instructors and DAN. Experienced, safety minded instructors are being sought to become Alert Instructors. These encourage student participation in DAN and assist headquarters, regional coordinators, and associate coordinators to inform the diving public about DAN. Qualified instructors should be nominated by their peers, headquarters, regional coordinators, associate coordinators, or any of the respective instruction agencies. Diving instructors who volunteer themselves will be accepted after endorsement by any of the above.


As both associate coordinators and Alert Instructors are voluntary, they are asked to participate as frequently and enthusiastically as they desire. Certain benefits are bestowed upon these people for their efforts.

For more information regarding these two programs or to join the DAN membership association write: Divers Alert Network, Box 3823 Duke University Medical Center, Durham, NC 27710. 🐠

## HADR REQUIRES LOGBOOKS

A new safety measure will be required by members of the Houston Association of Diving Retailers (HADR) to provide safer diving experience on all organized dive trips. A C-card only tells the divemaster when the diver completed his course; therefore, effective January 1, 1984, a logbook will be required before going on a trip through any Houston dive shop. Logbooks give a history of experience and description of type and frequency of diving. This is another step by HADR to promote diving and safety. 🐠



A black and white photograph of three divers underwater. They are wearing Sherwood regulators. The diver in the foreground is wearing a regulator with the 'SHERWOOD BRUT' logo. The diver in the middle is wearing a regulator with the 'SHERWOOD 4000' logo. The diver in the background is wearing a regulator with the 'SHERWOOD' logo. Bubbles are visible around the divers.

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# Technifacts

BY E.R. CROSS



Last month we discussed various kinds of magnetism and their effects on a diver's compass. This month we'll discuss using a magnetic compass for underwater navigation.

Navigation has been defined as the process of directing the movements of a craft from one point to another. Navigation of a watercraft is called marine navigation; of an aircraft, air navigation. In the case of a diver the process of directing his movements from one place to another could be termed diver navigation.

The term dead reckoning is used to define a position determined by a compass course made good and by the speed of advance through or on the water for a certain time. Piloting refers to determining a position by making reference to objects with known geographic locations either by the use of compass bearings or

ranges of known objects, depth soundings and other means.

None of these definitions apply precisely to diver navigation since the diver lacks a range of visibility and technological devices that permit accurate determination, or even accurate estimates, of true courses or speed through the water. And certainly there are no underwater objects by which a diver can navigate accurately, at least not when he/she first starts diving in an area. However, if a diver repeatedly dives the same area, it is helpful if a sketch of the place is made showing prominent objects and compass courses with distances between each of the plotted objects.

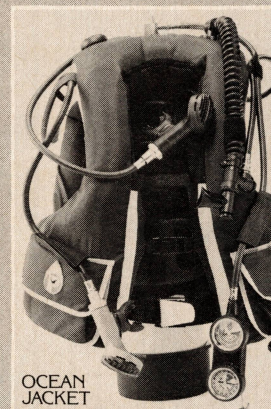
In spite of deficiencies in navigational information or instruments, it is possible for a diver to navigate with enough accuracy to keep his/her dive within safe lim-

its of direction and distance from shore or a boat. Pre-compass, early marine navigators, perhaps 1000 years ago, made long voyages completely out of sight of land by using the direction of a steady wind, as indicated by water surface conditions, to maintain a steady course. An occasional sight of the sun or other celestial body permitted course corrections as the direction of the wind shifted. As a matter of record, the first use of a crude magnetic compass was to check the direction from which the wind was blowing and not specifically to steer a given direction or course. A diver should use natural marks U/W and topside and a compass to combine dead reckoning and piloting.

## DIVER NAVIGATION

Complete awareness of everything in  
(Continued on Page 24)

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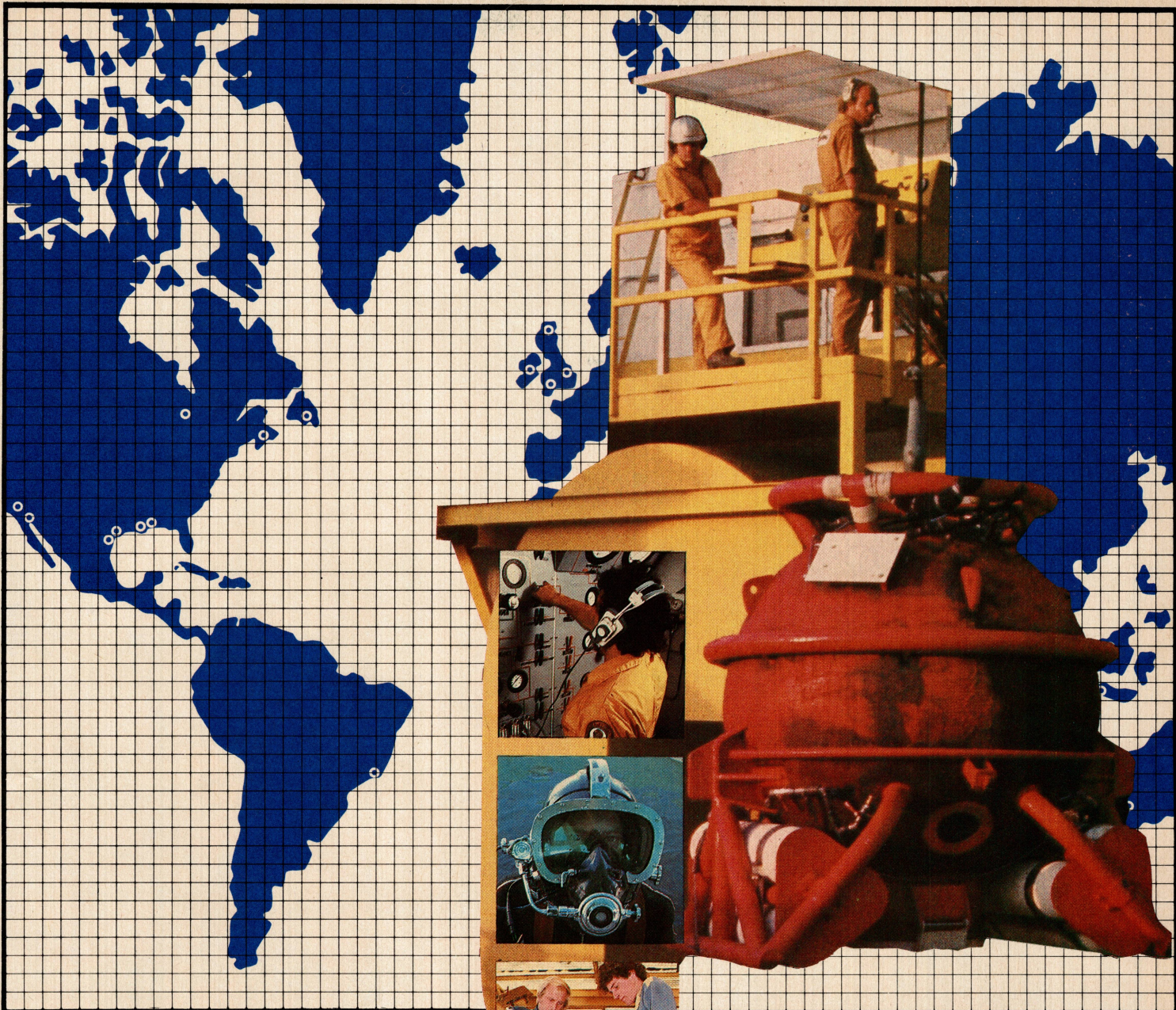
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# Dragon of the Deep


TEXT AND PHOTOGRAPHY BY GERI MURPHY

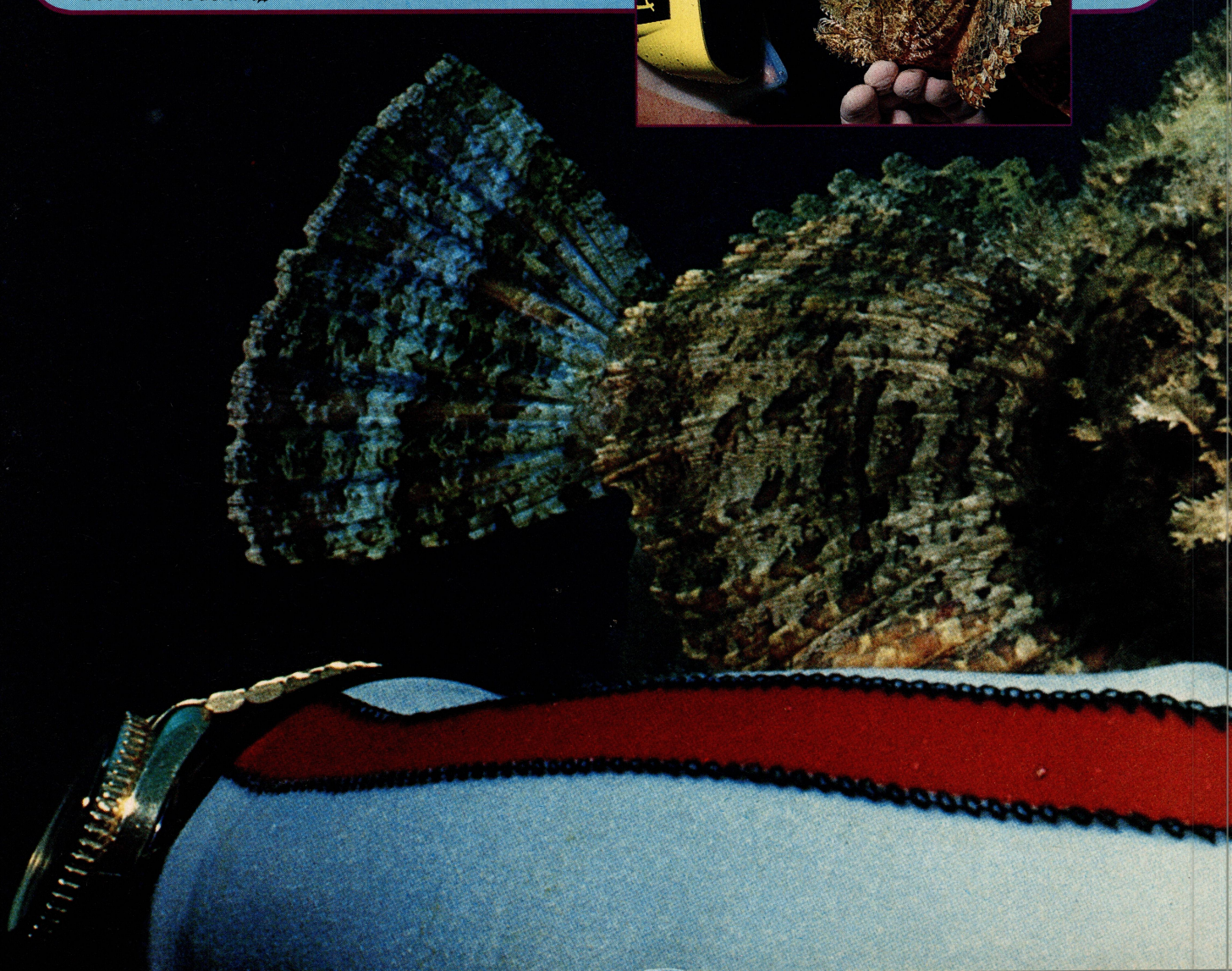
**T**he scorpionfish is one of the most grotesque, yet most beautiful fishes of the coral reef environment. It is so ugly it is absolutely fascinating to observe at close range.

Perched on a coral outcropping, this beast sits as still and as alert as a frog on a lily pad. It is content to pass the time immobile, waiting hopefully for a small fish or shrimp to pass within range of its vacuum-like mouth. Should an unsuspecting victim come within lethal range, the scorpionfish inhales it.

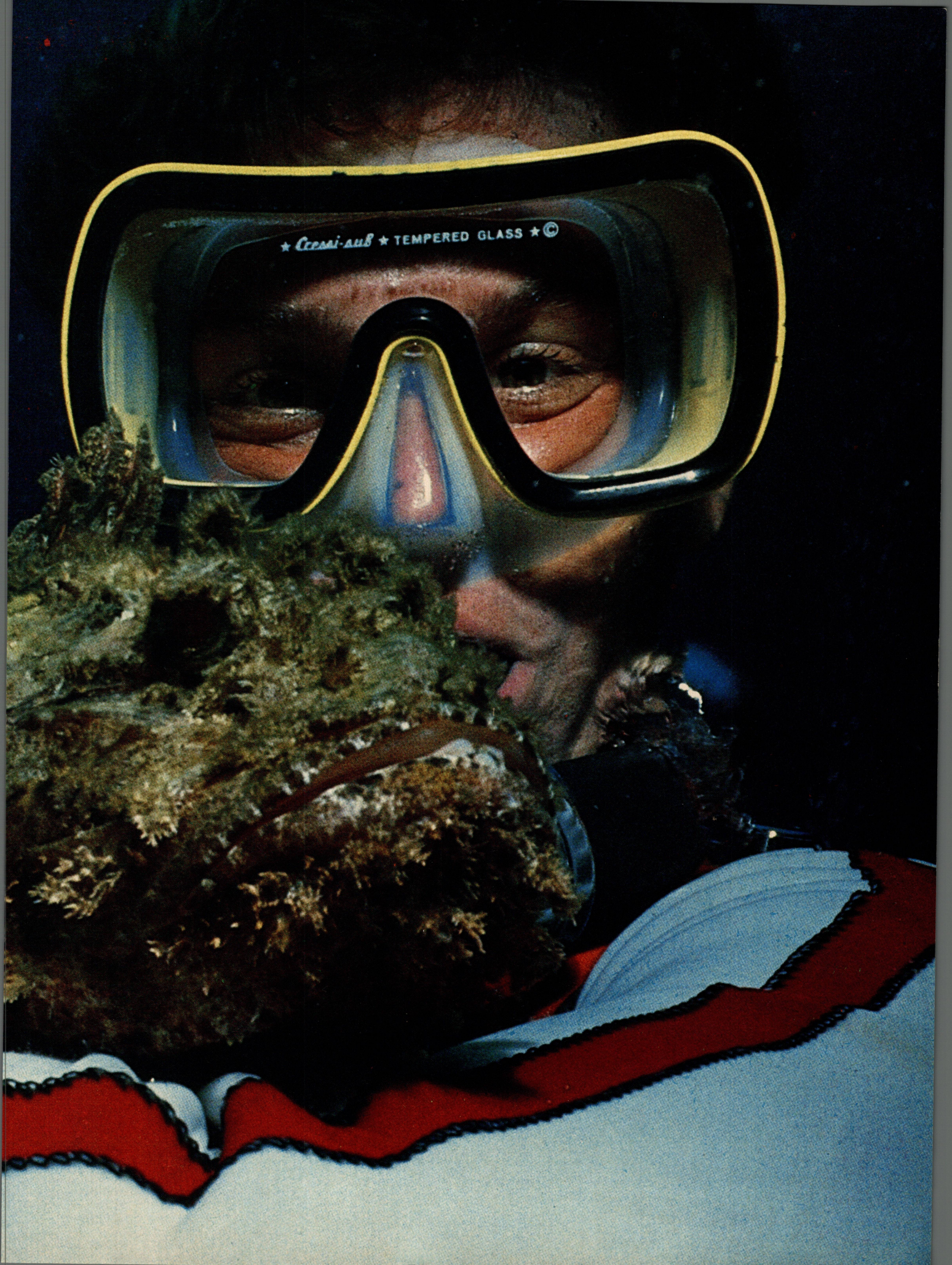
Upon close observation, one is always amazed by the medieval, almost gargoyle appearance of this creature. Its outer skin and bone structure are covered with horny, spiky, scaly appendages which are reminiscent of those legendary dragons. This prehistoric beast in miniature has the uncanny ability to blend in with the rubble and algae covered coral that litter the reef floor. It can change its color to match its background and thus become virtually invisible on the reef.

Fortunately for divers, this undersea dragon only grows to a length of 12 to 18 inches. It was named after the scorpion because of the painful sting which can be inflicted by its poisonous dorsal fins. It will erect these spines when excited, annoyed or harassed. The sting is painful but not fatal.

Scorpionfish are a popular attraction on most coral reefs as they make convenient subjects for close-up photography. Let the local divemaster handle this creature if you are unfamiliar with its behavior. Look, but don't touch! 









## TECHNIFACTS

(Continued from Page 20)

sight and relating this to conditions and objectives of the dive is more important even than the diver's compass in conducting a safe dive. This awareness and application of what is observed to the dive plan must start before the dive begins and continue throughout it until the diver is safely away from the area.

In almost any area of diving within sight of land there will be natural and man-made landmarks that can be lined up and which a diver can use to make a surface swim on a reasonably straight course. Other marks can be used as cross-bearings to locate the nearly exact spot for the dive. These marks or ranges can be used when diving from shore or from a boat. The marks used for ranges do not necessarily have to be plotted on a chart. It will help in future dives in the area if a sketch is made of the marks to aid the diver in returning to the dive site. Also, in using these marks, observe and record compass courses and bearings so future navigation of these ranges can be accomplished with more accuracy. Try to use tall, preferably thin, objects for range marks. Poles, posts, antennae or the

edges of buildings or other large objects are good range marks. Establishing and using range marks to reach a dive site by surface swimming using a snorkel will conserve air and permit a longer dive once the site is reached.

During an underwater swim be observant and totally aware of all conditions underwater. Using the compass, note the direction of: any current; sand or silt movement; sand or silt ripples on the bottom; kelp or other seaweed; and surge. Once the compass direction of these phenomena are noted, they can be used to maintain an accurate course across the bottom. Occasionally check their direction with the compass. Also, knowing the direction of the current and surge will allow the diver to make corrections so the desired course is maintained. Keep in mind that conditions and direction of the current change with distance from the shore. Use the compass so proper planning can be done to compensate for any changes in the current.

In making a swim across the bottom for a considerable distance, look as far ahead as possible for one or more objects that can serve as a range by which the diver can maintain an accurate course. Pick a near object and a far object and keep these in line as the swim progresses across the bottom. When the closest object is very near, use the far object and pick another object beyond it

as a new line-up. In this way an accurate course can be maintained easier than by using a compass. The compass is, again, used more to check the desired course than to maintain it.

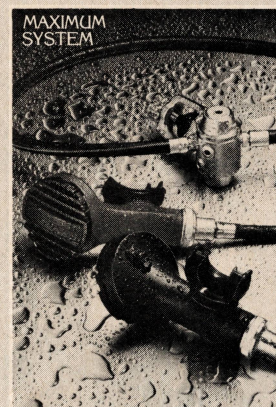
Another excellent guide for maintaining a fairly accurate course is the position of the sun or on a night dive, a full moon. When underwater and ready to start the transect, locate the position of the sun and by keeping the bright spot of the sun on the surface of the water at the same angle, a straight course will be followed. For the short time a diver is underwater the sun moves very little and is, for practical purposes, stationary. At night a bright light shining overboard from an anchored boat can also be used as a guide for a limited excursion.

In using a compass to swim a course to and from a dive site, keep in mind that the return course may not be the exact reciprocal. This is caused by a change in the magnetism of equipment close enough to the compass to cause deviation (see Technifacts, December 1983). Normally the difference between a course's reciprocal and the actual return course will be slight. On short distance swims and with moderate to good visibility, the difference will not be enough to make the dive hazardous.

## COMPASSES

There are two basic kinds of diver

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## TECHNIFACTS

compasses; direct reading and indirect reading. There are several models and even more sizes. Some compasses will have a north seeking magnetic needle. Others will have a compass card.

There are two things that will be the same on all magnetic compasses: First, the compass needle or compass card will point to magnetic north (unless nearby magnetic objects cause it to deviate. Secondly, the lubber line is always fixed to the compass case and, in nearly all diving compasses, is aligned with and used by the diver to obtain a course or bearing. Technifacts will review three direct and two indirect reading models.

### DIRECT READING

In a direct reading compass the numbers read clockwise from 0 to 360 degrees. The needle or compass card will always indicate magnetic north (or 0 degrees) and the diver lines his swim up on the appropriate course. Some direct reading compasses also have a movable indicator used to mark the course. Direct reading compasses are the type found on nearly all ships and most boats and are the kind with which experienced sailors are familiar.

### DIRECT READING: TYPE 1

This compass has a north seeking compass card with the degrees from 0 to 360 printed clockwise on it. Zero degrees always points to magnetic north. The lubber line is attached to the compass housing. There are no marks and no bezels.

To use this, the diver selects a course or bearing and rotates the compass until the lubber line is on the desired course. He/she then swims, keeping the lubber line parallel with his/her body and lined up with the course. This is an easy compass to use with no bezel or marks to set.

### DIRECT READING: TYPE 2

This instrument has a north seeking compass card with only the cardinal points on it. The rotating bezel is graduated from 0 to 360 degrees clockwise. The lubber line is fixed across the top of the compass. The outer circumference of the compass card rim is also graduated from 0 to 360 degrees clockwise. This dual readout permits swimming a course or taking bearings from the top or side of the compass.

To use this compass the diver rotates the bezel until the lubber line is aligned with the desired course or bearing, then swims the course shown by the lubber line. Or, the side reading is used to find the actual magnetic course or bearing direct. This is an easy to use compass and is good for taking accurate bearings.

### DIRECT READING: TYPE 3

These are modified direct reading compasses that are accurate and easy to use. The diver looks at the side of a special compass card which shows north opposite the north seeking end of the card. To swim a course, simply turn with the compass until the desired course lines up with the lubber line fixed to the side of the compass case. This is also a fairly accurate compass for obtaining bearings of objects both topside and underwater.

### INDIRECT READING COMPASSES

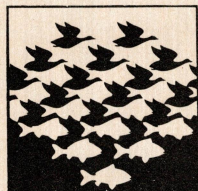
In this design the degrees, whether printed on a compass card, bezel or compass case, are also 0 to 360 degrees but are read counterclockwise. An "old salt" is likely to find this type compass difficult to use while a "land lubber" (see note at end of this Technifacts) will find it easy to use.

### INDIRECT READING: TYPE 1

This compass has a fixed 0 to 360 degrees counterclockwise dial. The fixed lubber line aligns with 0 to 180 degrees on the dial. A rotating bezel has double marks for bracketing the compass needle and with a single mark opposite to aid in sighting along it.

To use, rotate the bezel until double marks bracket the desired course. Turn

(Continued on Page 32)



# Bauer Air-Pure Air



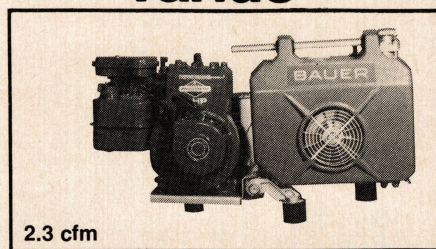
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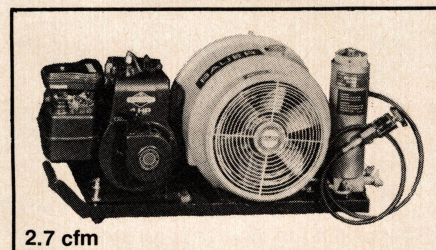
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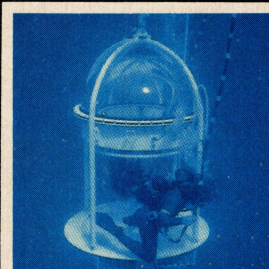
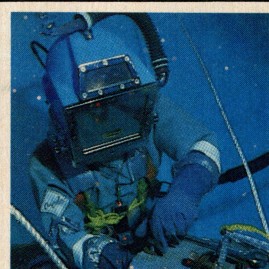


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# USA

## Photo Winners

At Our World-Underwater, held in Chicago last May, the winners of the 1983 Underwater Society of America International Photography Competition were announced. We present them to you on these pages.

This yearly competition is designed to provide nonprofessional underwater photographers worldwide with the opportunity to have their work published and to win thousands of dollars in prizes. This year there were numerous superb entries by fine amateurs from 30 countries. A special "thank you" goes to our permanent judges, Paul J. Tzi-



"Sunshafts in an Emerald World," Gilbert van Rijckevorsel  
• Grand Prize/First Place Invertebrate Slide

BY PAULA M. NOVOTNY



"Sliding Away," Al Huelga  
• First place Diver/Environment Prints

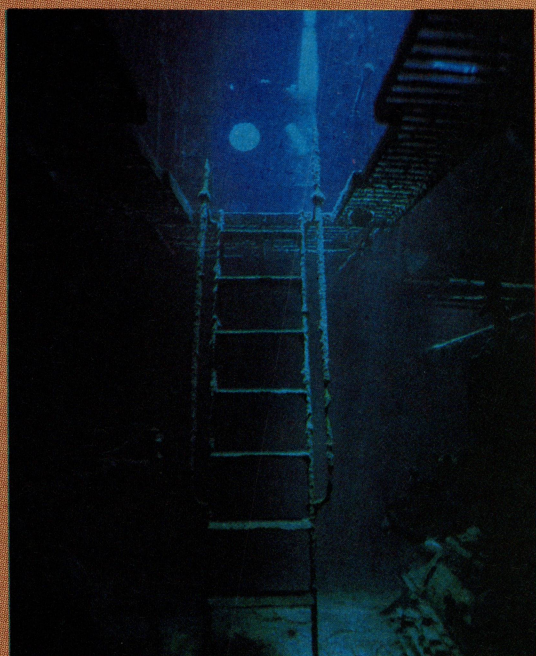


"Cave of Gold," Ben Epstein  
• First Place Diver/Environment Slide

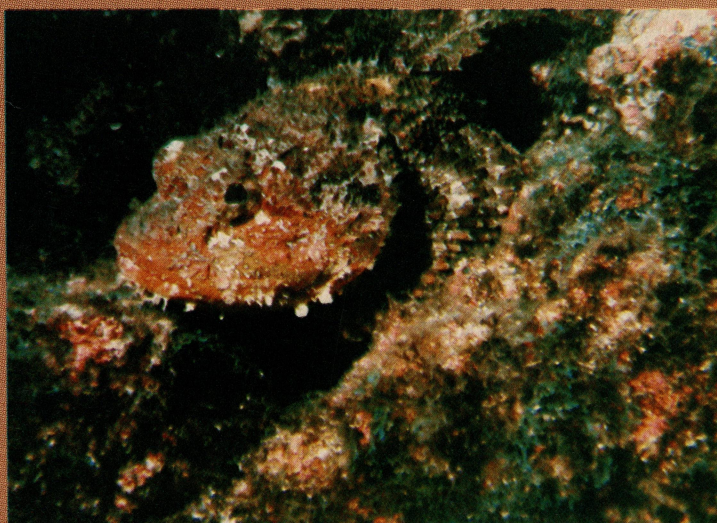




**"Oh! To be Free!" Frank T. Hittell**  
 • First Place Fish Prints



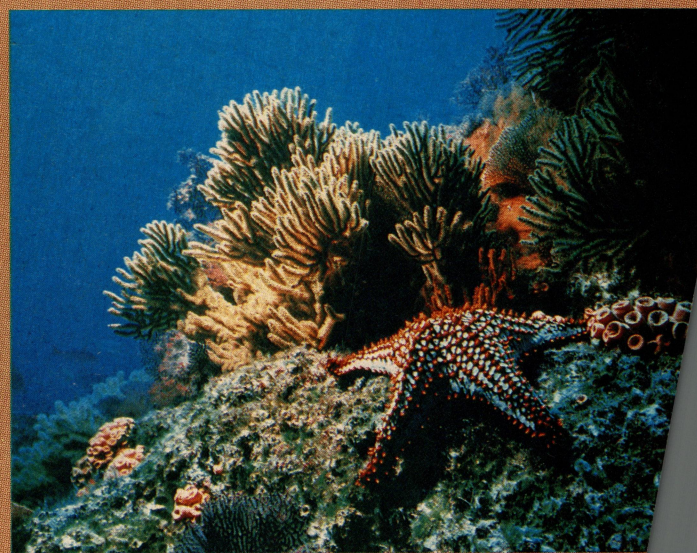
**"Ghostly Chamber," Sally Adolph**  
 • First Place Wreck Slide



**"Camouflaged," Sandy Hootman**  
 • First Place 110 Prints



**"Squid in a Net," Gilbert van Rijckevorsel**  
 • First Place Fish Slide



**"Morning Star," Al Huelga**  
 • First Place Invertebrate Prints

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***judges' comments  
 on winning photos***





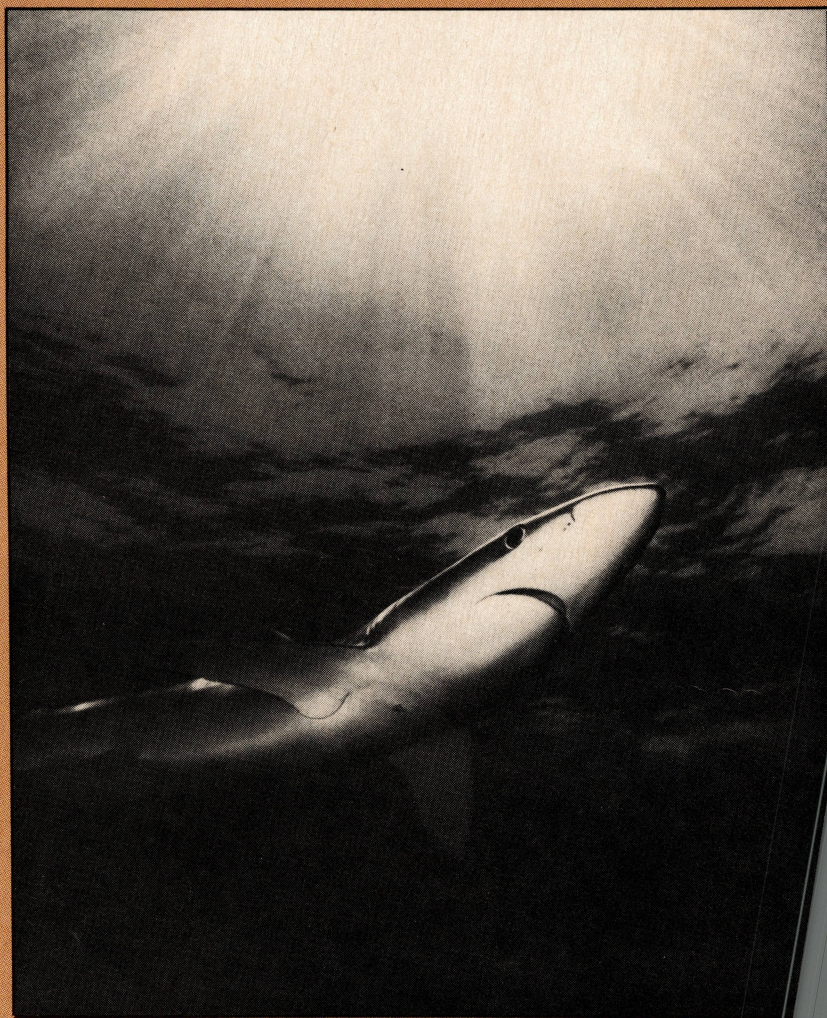
"Motion," Inga Behr  
• First Place Special Effect Prints

# USA

## Photo Winners

moulis, Rick Frehsee, Gale Livers and Gary Yohler. Many thanks also to all the manufacturers and organizations that donated close to \$10,000 in prizes. These were distributed, along with special plaques, to the first, second and third place winners in each category.

The 1984 competition is now underway; entries must be received by March 1. Prizes will include: a week long scuba vacation at Anthony's Key Resort in Roatan, courtesy of Peter and Alice Hughes and Julio Galindo; a Nikonos IV-A from Nikon; a Kodak slide projector; and thousands of dollars in other prizes. The five categories for slides and prints are: fish, invertebrates, diver/environment, seascapes and wrecks. Special categories include: 110, black/white and special effect prints; movies; and video. For an entry form write: U/W Society of America, 1984 International Photography Competition, 9702 East 12th Street, Indianapolis, IN 46229. Please include a self-addressed, stamped, long envelope. 🐠



"Magnificent Blue," Ernest H. Brooks II  
• First Place Black/White Prints



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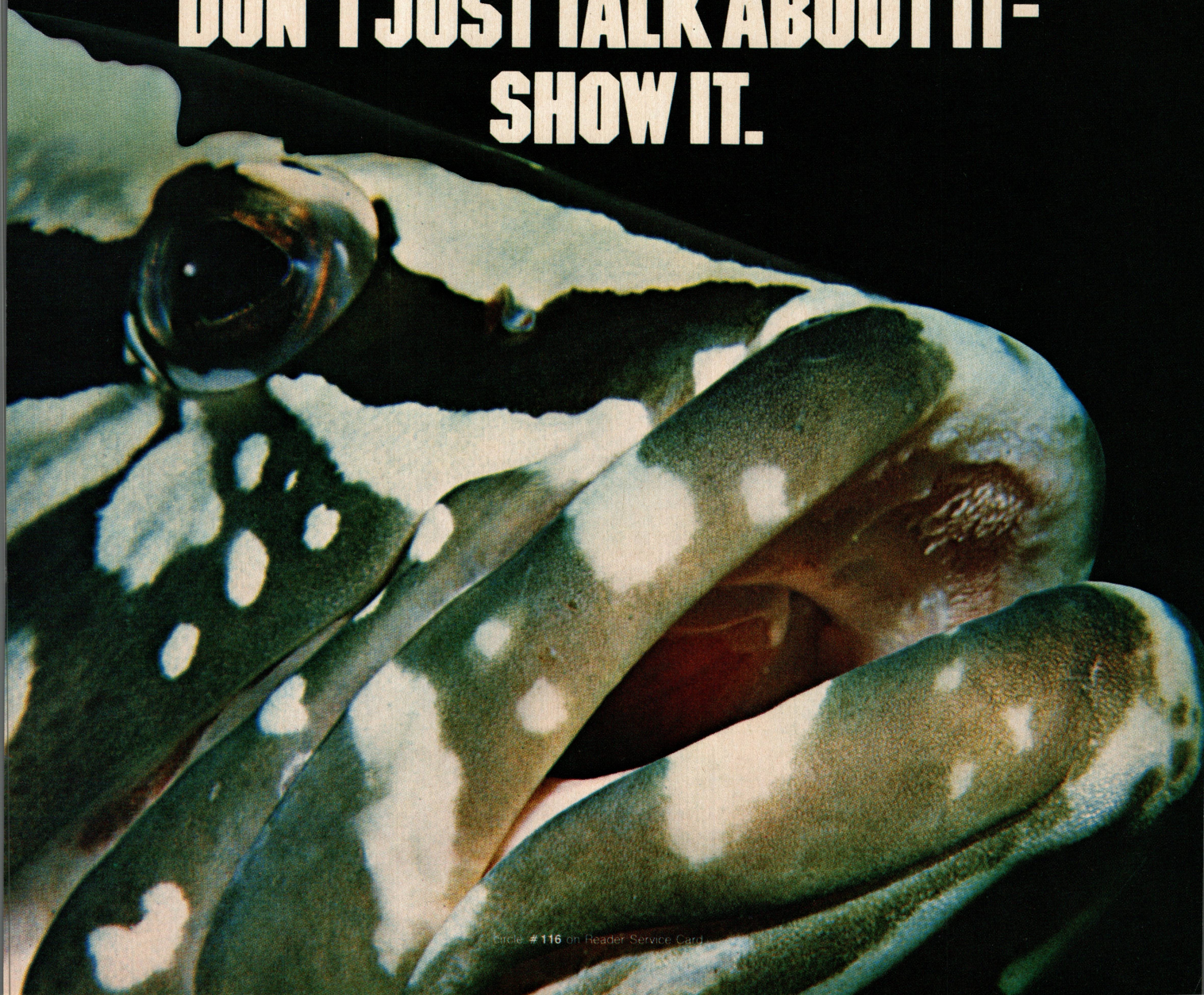


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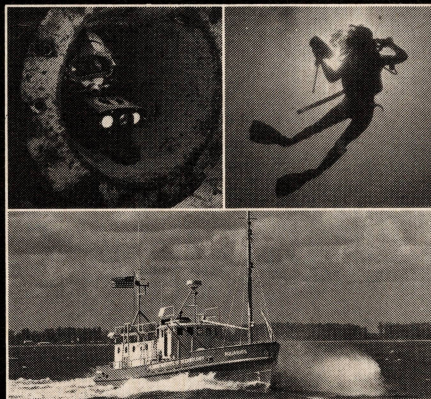
In some colleges all the ocean in an oceanography course is in a textbook. Not at F.I.T. We use our three ocean-going research vessels to teach our students what it's really like.

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Diving Operations, Commercial Fishing, Electronics, Robotics, Computer, Marine, Diesel, Oceanographic, Photographic, and Marine Propulsion Technology. We have equally exciting Bachelor degree programs in Aquaculture, Robotics, Environmental, Oceanographic, Computer, Photographic, Medical, and Applied Technology. Call us or write us and let us know if you're interested.



## TECHNIFACTS

(Continued from Page 26)

the entire compass until the north seeking needle is bracketed by the marks. While keeping the compass needle bracketed, swim parallel to the direction of the lubber line—0 degrees. Do not swim in the direction of the compass needle, which always points north: Swim the lubber line.

### INDIRECT READING: TYPE 2

This compass has a fixed dial 0 to 360 degrees counterclockwise on the outside of the compass case. The fixed lubber line runs across the outside of the case. A movable bezel has marks inside the circumference of the fixed rim.

To use this compass, set the bezel until marks bracket the desired course. Rotate the compass until the needle is bracketed by course marks. Swim parallel to the direction indicated by the lubber line on the compass dial. Do not swim in the direction of the compass needle.

It must be remembered that all magnetic compasses will point toward magnetic north regardless of how dials or bezels are turned. What the diver is doing when the bezel is rotated is measuring the angle between the desired course and magnetic north. The course, or bearing, is always indicated by the fixed lubber line.

### GETTING THE MOST FROM A COMPASS

1. If you have been taught to use a compass in a class and feel comfortable with that compass, purchase one for your own use. Then stick with that compass; do not change models.

2. Practice using the compass topside until you can walk several types of courses with accuracy.

3. Practice in the water until the same accuracy is achieved.

4. Practice swimming courses by bottom contours, the sun, by the direction of currents and other underwater characteristics and use the compass to occasionally check your accuracy. Constantly watching a compass takes the fun out of diving. Being aware of things underwater that indicate direction, and your safety, is part of why you are underwater.

5. Keep metal objects well clear of the magnetic compass. All objects tested by Technifacts had almost no effect on the compass if kept at least 18 inches from it whether topside or underwater. Water does not decrease the magnetic influence. It is the total distance between compass and object that makes the difference. Test all metal and electrical objects, such as lights, metal detectors and communication devices, to see how much effect they have on your compass. To do this, place the compass on a table

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
## TECHNIFACTS

or desk so it is steady, select an object and slowly bring it toward the compass. Note the distance at which the needle starts to be deflected. Test different ends of the same objects because there may be a difference in their effect on the compass. Note the distances and keep objects at least that far away from the compass. Two compasses at close range will cause the greatest deviation.


6. A compass should last indefinitely if proper care is taken of it. A compass with numbers inside the case will outlast those with numbers on the outside.

Very rarely will a diver have to swim a course or take a bearing with such accuracy that the variation and deviation of the compass is critical. But the use of a compass to help program a safe dive does result in a fun dive.

Author's note: A lubber's line or mark is a reference line or mark on any direction-indicating instrument, marking the desired heading. The term is derived from the fact that a land lubber or lubber, a person considered awkward or inexperienced on board a ship, needed a mark on the compass to indicate the heading of the sailing vessel while an old salt knew the direction the vessel should be

steered by the wind and other natural signs—hence the lubber's (possessive) line or lubber's mark. As other types of instruments were developed the lubber's line was used to indicate course or heading. Technically the phrase should be lubber's line and not lubber line but recent usage is tending toward the later. 

## PARKWAY SUIT TEMP

The November SKIN DIVER featured an article on the Parkway Encounter wetsuit. The suit material was described as retaining its flexibility in temperatures as low as 70°F. The correct figure should have been - 70° F—indicating flexibility at temperatures well below those encountered by divers. 


## REDDICK AT DEMA

A special five hour seminar on Successful Marketing for Dive Stores will be presented by NAUI and conducted by Dr. Marshall Reddick on January 13 in New Orleans. Dr. Reddick is director of the Institute of Entrepreneurship, California State University Los Angeles, and has bachelor, masters and doctorate degrees in business.

He will show dive store operators how to maximize the potential of their stores and enable them to make greater profits.

Dr. Reddick will give two presentations at the 1984 DEMA Show on Friday (the day before the show officially starts). He will present a two hour Time Manage-


ment seminar in the morning, designed to enable people to save one to two hours each day. The afternoon seminar will be the special five hour seminar on Successful Marketing for Dive stores.

For details, prices and enrollment forms, dive stores should contact Walt Amidon, c/o NAUI, P.O. Box 14650, Montclair, CA 91763. 

## PDSNY STUDENTS

Students in the Professional Diving School of New York's commercial air diver program have completed working air dives to 165 fsw in the wet pots of the school's North American Hyperbaric Center (NAHC). The dives had a bottom time of two hours which required almost six hours of decompression. This dive profile is now a standard part of PDSNY's course 101 curriculum. Graduates of this course are eligible to continue in a one week co-operative program with Fort William in the United Kingdom, which leads to a North Sea Air Diver Certification.

The water filled chambers of the NAHC were moved to New York from Washington, DC in 1981. In Washington they comprised the U.S. Navy's Experimental Diving Unit (EDU) and similar dive profiles were used to train Navy Divers.

For more information on PDSNY's training programs call (800) 223-8000; (212) 885-0600 in New York State or from outside the United States. 

## IF YOUR EYE CAN SEE IT, A CREATA LENS CAN PHOTOGRAPH IT SHOOT WIDE - SHOOT CLOSE - SHOOT ANY WAY YOU WANT

You want to get the most from your dive trip, and that often means photographing different size subjects on the same dive. Zoom lenses don't work, and of course you can't change your prime lens underwater. But you can easily change a **CREATA LENS** because it attaches to the **outside** of the 35mm lens on your Nikons.

Creata's ingenious **CLOSE-'N-WIDE OPTICAL GROUP**, for example, offers an amazingly flexible system for closeup and wide angle — on the same dive. Without surfacing photograph a small fish, then zero in on a 2"-wide cluster of feather dusters, and end up photographing your buddy.

Here's how it works. Before you enter the water, attach a short tube between your 35mm lens and Nikonos. Then at the bottom clip on the 1:3 or 1:2 framing system for closeups — or a 28mm Wide Angle Closeup Adapter that allows you to take pictures as close as 8½" and as far as 3½ feet. The **CLOSE-'N-WIDE** is a natural because it's easy to carry and easy to use. And results may just turn you into a prize winning photographer.

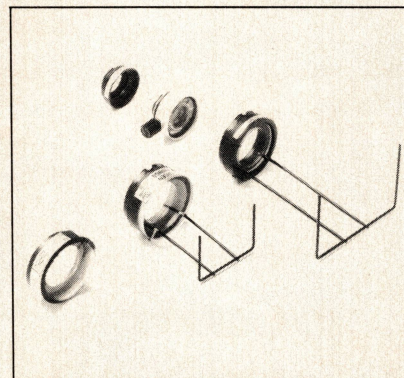
Whether you are a beginner or are experienced in underwater photography, there are 12 other high-quality **CREATA LENSES** and **EXTENSION TUBES** to fit your requirements — from a 150° fisheye to 2:1 macro. You'll find a selection at better dive and photo stores, or at **THE CREATIVE WHALE** — where underwater photography is our **only** business. Dealer inquiries invited.

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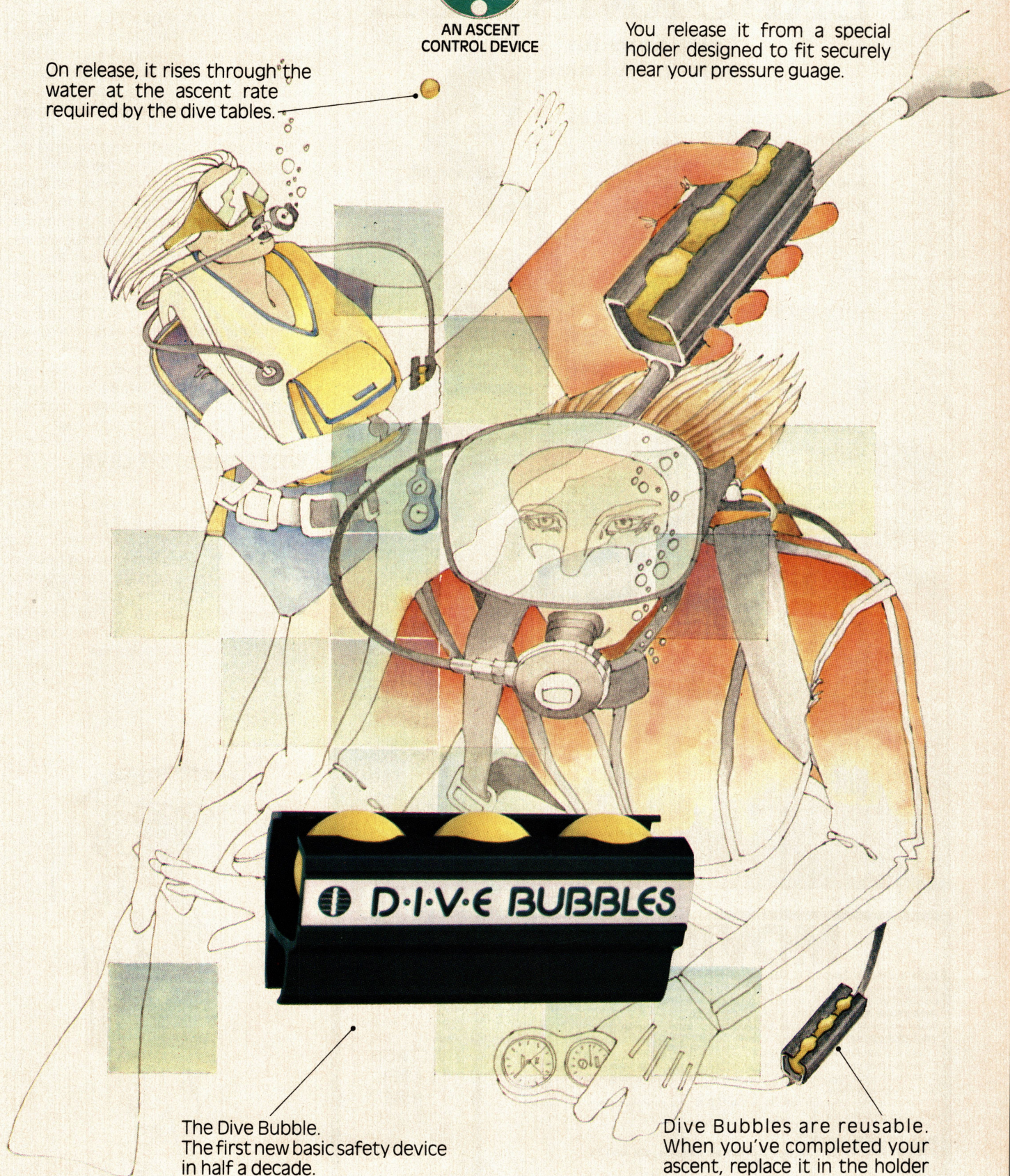


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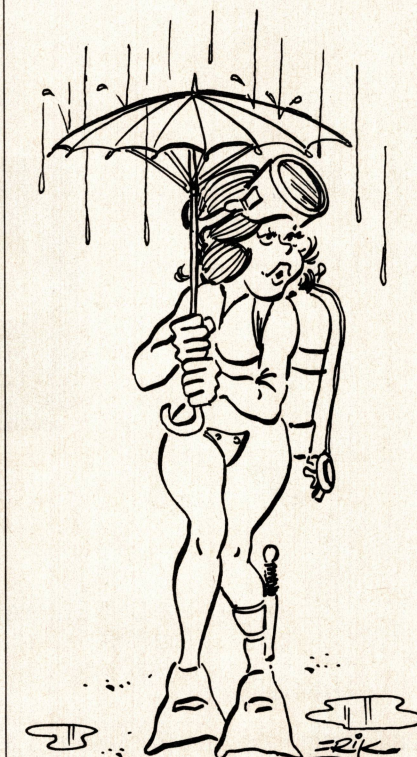
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## U.S. AQUA SPORTS

In July U.S. Aqua Sports, Inc. of North Haven, CT terminated its distributor relationship with Nemrod Metzeler of Barcelona, Spain. Ken Brown, president of U.S. Aqua Sports, stated that the decision was based on a need for the company to expand its line into areas of improved product designs and material unavailable under the prior distributor.

When questioned concerning availability of service and repair facilities for Nemrod Metzeler products, i.e. regulators, pneumatic and rubber band spearguns, etc., Brown stated that he felt that the consumer would be protected through the appointment of a new exclusive distributor equipped with the parts and capabilities to maintain the extensive quantity of Nemrod Metzeler products in use.

The U.S. Aqua Sports line for 1984 will, according to Brown, feature a full line of silicone and rubber products in both futuristic and traditional designs.

## WESTCHESTER DIVE CENTER

Peter Jagich and Michael Christatos, both PADI instructors, have recently joined the staff of the Westchester Dive Center, a PADI Five Star Training Facility. The center offers 18 different programs in diver education and has a staff of 11 instructors. With facilities in Port Chester, NY and Baldwin Place, NY, the center is in its sixth year of growth.



# Commercial Diving Is Serious Business



The demand for natural resources from the sea has never been greater. Twenty years ago, there were only a handful of offshore drilling rigs located in coastal and gulf waters. Today, there are thousands of deep-water platforms throughout the world. The need for qualified personnel to man and operate these facilities is ongoing. Your entry into the world of deep-sea diving will be a most prestigious and rewarding career. *Not only is there a demand for divers in the oil industry, but underwater construction, salvage, farming and environmental awareness need trained technicians also.* Your first step to employment as a commercial diver is training.

Divers Institute of Technology (DIT) was founded by men who have successfully met the challenges of inner-space. They know from experience what it takes to get the job done. Retired Navy and professional deep-sea divers joined forces over 13 years ago to establish a commercial diving school that would train and graduate only qualified entrants to the industry. The success of the DIT program can be measured by our physical growth, the credentials we have attained, and not only the number of top workers we have supplied to major commercial diving firms throughout the world in the oil industry, but to companies in

salvage and repair, inspection, underwater farming, etc. *We do not specialize only in the oil industry as some schools do.*

Divers Institute of Technology developed a six-month course that set an industry standard. Training is based on a highly sophisticated deep-sea diving program that prepares you both mentally and physically to enter this new environment. Our curriculum has been designed to prepare you for gainful employment in *all fields of commercial diving, not only in the oil industry.* Classroom instruction deals in facts and theory. Open water instruction gives you the practical application of classroom techniques. *The culmination of your training is actual dives to depths of 200 feet. To our knowledge, we are the only commercial school that puts you to this test. The confidence gained from this experience is unequaled.* Before you decide which school to attend, check this point out. Many schools provide only simulated deep dives in recompression chambers and diving tanks on dry land.

After proper training and graduation, you are prepared to enter the commercial diving field. It is then that you will realize a great deal of responsibility comes with the territory. Responsibility to perform the tasks you were trained to do! Responsibility to your diving team and responsibility to all support personnel. *DIT will not graduate a student unless confident he possesses the ability to become a qualified commercial diver.*

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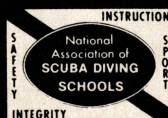
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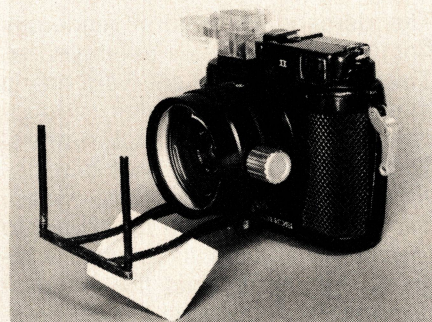
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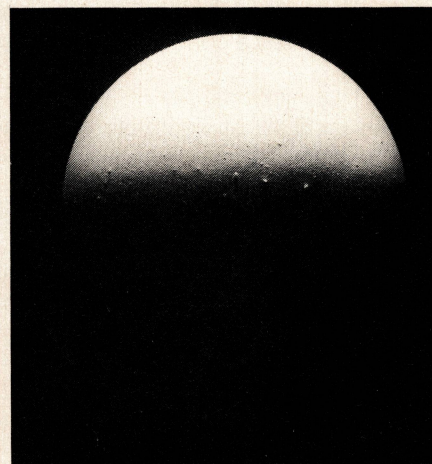
## MACRO REFLECTOR

**TEXT AND PHOTOGRAPHY  
BY GLENN POLLOCK**

Every photographer is aware that a single light source creates harsh, contrasty photographs with bright highlights and dense shadows. At times this is the effect the photographer is trying to produce, but more often it is the undesired result of using a single strobe. With a normal or wide angle lens this can be remedied by using a second or slave strobe aimed from the opposite side of the picture. This fills in the harsh shadow areas. But with macro photography the problem is more acute because it is often impossible to correctly position a second strobe owing to the size of the subject and its location within the cracks and crevices of the underwater terrain.



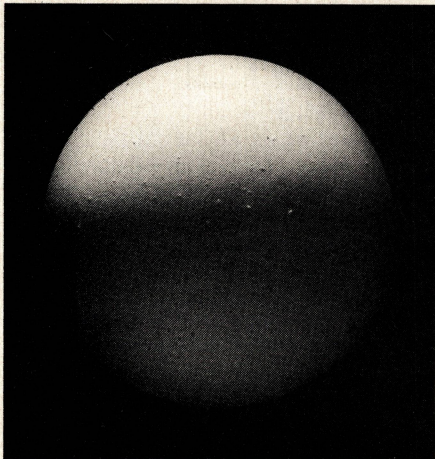
To help me solve this problem I made a small white reflector which attaches to the bottom of a macro framer. This one and one-quarter by one and one-half inch



piece of plastic acts as a second or supplementary light source and bounces light from the single strobe back into the shadow areas of the picture.

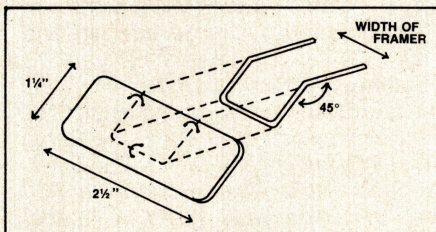


The two 1:3 macro photos of a ping pong ball against a black background graphically show the improvement in the light balance this reflector creates. (The



ball was first painted black and then white to ensure no light was transmitted through the translucent material from which the ball was made). The flat white surface of the reflector diffuses the light enough so no significant shadows from the framer are cast back on the subject.

This reflector can be made in a evening from materials usually found around the house. The following materials are all that are needed: 1. A small piece of plastic. (I used the top of a cottage cheese container.) 2. A coat hanger. 3. Nylon thread and a needle. 4. Five minute epoxy glue. 5. Paint.



The exploded diagram shows how it all goes together. The coat hanger is bent and cut as shown, the width and length being determined by the particular framer on which it is going to be used. Then a coat of paint is applied to inhibit corrosion. Stainless steel wire could be used but it's more expensive and sometimes hard to find. Once the paint is dry, scrape off the surface of the wire that will be in contact with the plastic reflector and glue the two together. Since no glue seems to securely hold the metal to the plastic it is necessary to sew them together with the nylon thread. One stitch at three different spots is sufficient. Then cover the thread with a coat of epoxy to prevent it from coming unraveled or untied. Dab a bit on the reflector side also. When everything is dry simply tape it to the macro framer with the electrical tape and you have an efficient, inexpensive second light source for those hard to light macro subjects. x

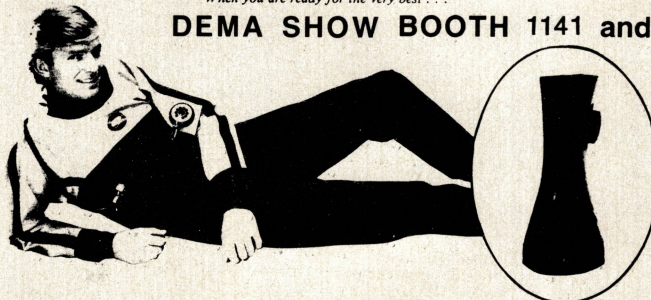


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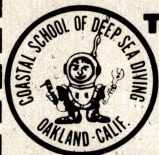
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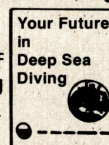
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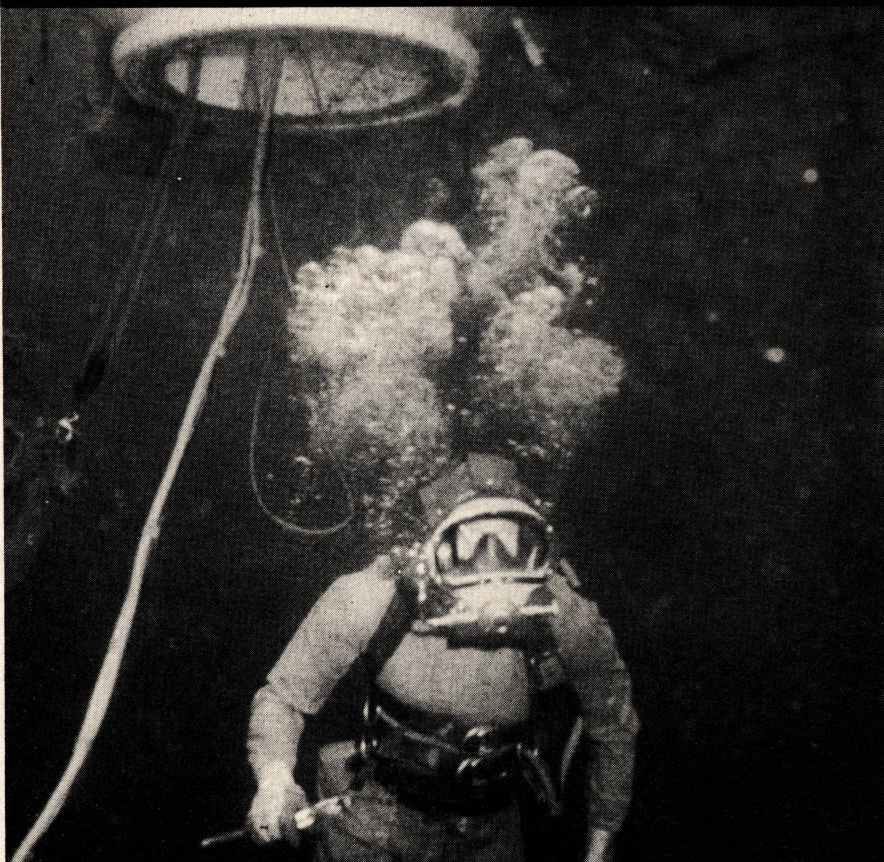
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## Film Festivals 'n Symposiums

### MCKENNEY FILM FESTIVALS

Once again Jack McKenney is offering his mini-film festival series for 1984. Long popular with audiences, McKenney's program has expanded to more than 20 films and slide presentations that are well known for their variety, humour and superb photography.

McKenney has added three new films to his program. Two, entitled *I'd Rather Be Diving* and *Diving For Dollars*, featur-



ing Thom Sharp, have proved to be crowd pleasers. The *Killer Sea* is a rediscovered film from the '40s hosted by none other than Lowell Thomas. It features Constable Caswell doing battle with a giant octopus, a large sawfish and shark.

Some of McKenney's other film titles that are favorites with diving audiences are: *The Devilfish of El Bajo*; *The Bahamas: Of Dreamers and Divers*; *The Emerald Sea*; *God's Other world: The Red Sea*; *The Underwater World of Florida*; *Fish Antics*; and *Things That Go Bump in the Night*.

These are just a few of the films and slide programs available. A Dive to Adventure film festival is a great way to spark interest in a lagging diving community; raise money for a worthy cause; or promote almost any aspect of the diving industry. For more detailed information, write or call Jack McKenney at 1842 Micheltorena St., Los Angeles, CA 90026; phone (213) 663-3486. ✉

### BONAIRE SEMINAR

Medical Seminars, Inc.'s annual Medicine of Diving program in Bonaire will be held on February 4-11, 1984. The Flamingo Beach will be the host hotel. In addition to the academic program, there will be a complete diving program for physicians and their guests.

For a brochure, please write to: Medical Seminars, Inc., One Elm Place, Suite 204, 11107 Wurzbach Road, San Antonio, TX 78230. ✉



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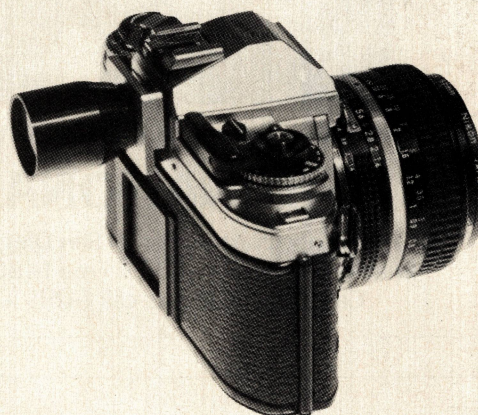
full frame, thru-the-lens viewing and focusing with the standard SLR camera eye-piece. Now you can see everything that's in the picture, from macro to wide angle, for the SUPER-EYE works with all lenses.

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SUPER-EYE picks up the image from the camera's viewfinder and extends it to the back of the SLR Case for full frame viewing. It is easily secured to the camera's viewfinder before installation into the underwater case. The SUPER-EYE comes with Ikelite SLR and SLR-MD CASES for cameras that have the standard eye-piece.

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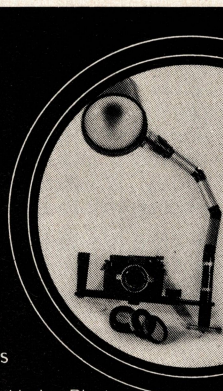
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## SEA COMPETITION

March 30 is the deadline for entries in the 20th Annual International Underwater Photographic Competition sponsored by the Northern California Chapter of the U/W Photographic Society.

Best of Show will receive a \$150 cash prize and a handsome, uniquely-crafted



wall plaque. More than 60 other awards will be given for slides, prints and movies entered in amateur and open divisions. Award winning prints and slides will be exhibited at the Sea 84 International Underwater Film Festival on May 12, 1984.

For competition entry blanks and information, write: Maury Schlatter, P.O. Box 9612, CA 94709; telephone: (415) 525-2238.

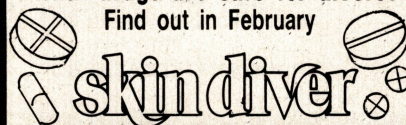
## BENEATH-THE-SEA PHOTO CONTEST

The Beneath-The-Sea Photo Competition sponsors have announced a March 1, 1984 deadline for entries.

Open to amateur underwater photographers in New England and mid-Atlantic states, the contest offers many prizes and awards. Winners will be honored April 28 at Beneath-The-Sea, the eighth annual greater New York underwater symposium and film festival in White Plains.

Slides or prints may be entered in several categories including; normal/wide angle; macro; northern salt or freshwater; and 110. Entry forms for the contest may be obtained by sending a self-addressed, stamped envelope to R. A. Jacobson, 305 E. 86th St. (2T), NY, NY 10028.

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Find out in February





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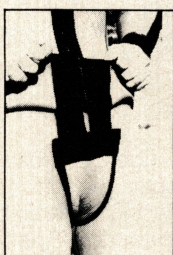
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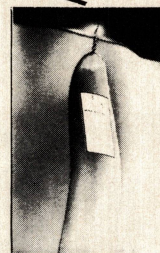
Smooth skin face seal  
on separate maxihood  
or parka hooded jacket



Contoured 3mm (½)  
5 finger glove



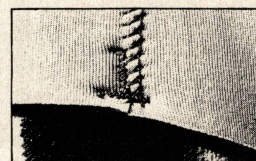
Long John top  
smoothskin  
continuous neck  
seal, velcro  
fastened



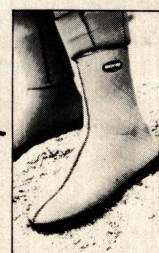
Shaped and  
contoured spine  
pad in Long  
John



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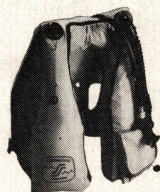
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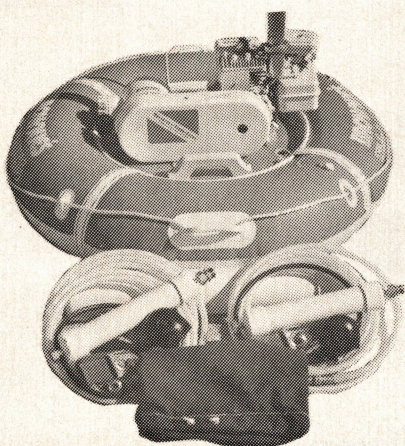
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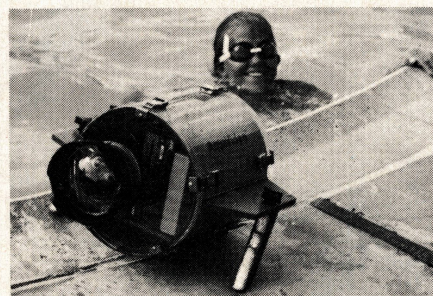
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See us at the N.Y. Boat Show Jan. 14-22

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# FOR DIVERS

BY FRED BOVE, M.D., PH.D.

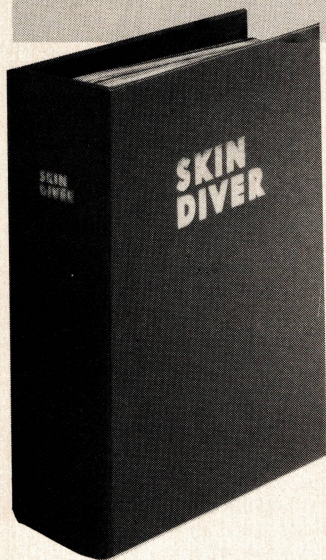
*The Divers Alert Network (DAN) has matured over its short lifespan into an effective national emergency and nonemergency call system available to anyone who needs information on diving related problems or for management of diving accidents. Chris Wachholz, who manages DAN from its central headquarters at Duke University, has joined us in writing a description of DAN, its history and plans for its long-term activities.*

**T**he need for the Divers Alert Network (DAN) began with the increase in sport diving in the early 1960s. With this came an increase in diving accidents. According to the U.S. Navy, the failure rate on initial recompression chamber treatment for diving injuries rose from 14 percent to 47 percent in 1964. This occurred because the Navy was called upon to treat increasing numbers of civilian scuba divers who had not followed the strict guidelines used by closely-supervised Navy divers. Sport divers often responded poorly to treatment because of long delays between the accident and the initiation of treatment. Research into the effectiveness of the Navy standard air treatment tables resulted in the development of the far more efficient oxygen treatment tables V, VI, V-A and VI-A in 1967. These new tables, however, still could not be used effectively on many sport divers because of prolonged delays between injury and treatment. Ignorance of both divers and physicians of the symptoms of decompression sickness and arterial gas embolism and of the treatment for these illnesses was an important problem.

Although diving medicine experts from several Navy, Air Force and academic centers could be called upon for advice about diving accidents, it simply was not appropriate to expect these facilities to always be available for civilian casualties.

In 1977, the Undersea Medical Society (UMS) began planning a national organization where one phone call, from anywhere, could connect the caller to a specialist in diving medicine 24 hours a day. This person could provide information and had access to working hyperbaric chamber treatment facilities. DAN became a reality in September 1980 with a two-year grant from the National Oceanic and Atmospheric Administration (NOAA), and the National Institute for Occupational Safety and Health (NIOSH). The continental U.S. was divided into six regions including Alaska, with Hawaii and the Pacific trust territories composing the seventh. Volunteer regional coordinators, who were experts in the field of diving medicine, and the existing chamber facilities that had experience and capabilities in treating diving injuries composed DAN. DAN was managed by the Hyperbaric Facility at Duke University Medical Center in Durham, North Carolina. Concern was expressed by the UMS, the parent planning organization, that short-term federal support would jeopardize the development of DAN, and the organization began to seek support from other sources immediately. DAN, the diving equipment industry, and the sport scuba certifying agencies all agreed that DAN's service was necessary and a worthy cause, but no one could agree how DAN should be funded. Much controversy ensued re-

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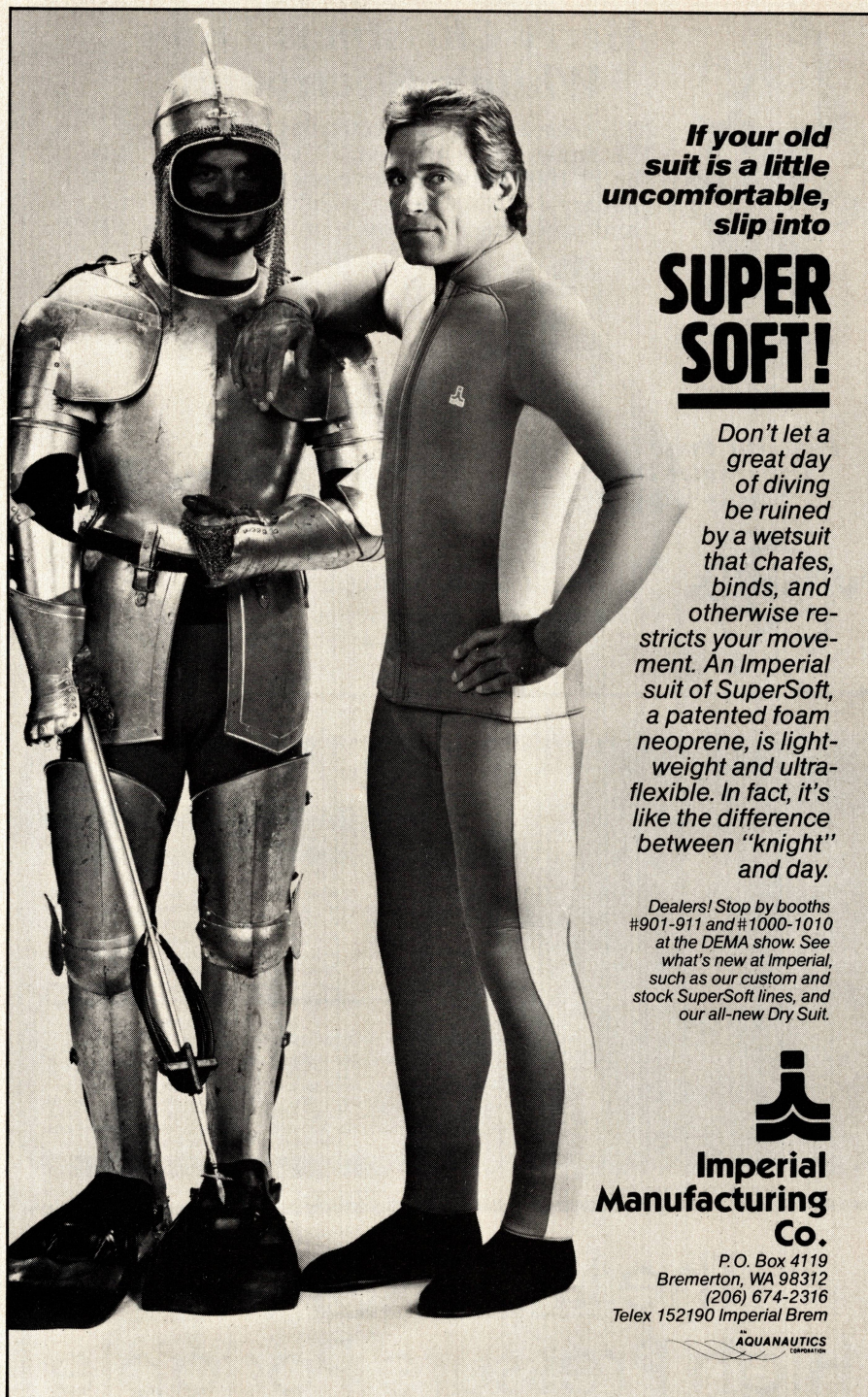


garding various plans. A plan to add a DAN fee to C-cards, equipment prices, or air fills was turned down and a plan calling for direct funding by certifying agencies and manufacturers also seemed unreasonable. Eventually, with the assistance of the certifying agencies and several diving equipment companies, DAN began to solicit donations from the people DAN serves: the divers themselves. Divers from across the country donated enough funds that in 1982 almost a third of DAN's budget came directly from sport divers. Dive clubs and dive shops sponsored special events with the proceeds going directly to DAN. One dive club held a picnic and pig roast which yielded nearly \$1,500 for DAN. Meanwhile, the concerns of the UMS became reality, the money allocated by the federal government was decreased by 50 percent in 1982 and then to 25 percent of the original budget in 1983. No more federal money was allocated for 1984. The people who managed DAN realized that an even more ambitious funding program would now be necessary.

From its beginnings in late 1980, DAN began to successfully assist in the consultation, treatment and referral of diving-related injuries. DAN also began to scientifically and systematically collect data on diving injuries and the effectiveness of treatment. Some in the diving industry viewed this with great alarm believing that the information would be used by the government to enact restrictive or controlling legislation on diving. None of the information that DAN has collected has ever been publicly released and DAN has a policy of giving out identifiable information only to those individuals or organizations directly involved in a particular accident case. In spite of this, the misconception of DAN aiding government control of diving continues to be held by some and is cautiously given up by others. The information collected by DAN is analyzed on a neutral basis, confidentially, to the damage of no one, but for the benefit of all. Without this kind of collective clinical information, we would never be able to identify good or bad methods of treatment, analyze the results of treatment for different injuries, or propose new and safer ways to dive and to treat injuries.

The main result of the data collected to date has been the development of a practical guide to the emergency management of diving-related injuries. The *DAN Underwater Diving Accident Manual* is an easy-to-read description of the symptoms of the major diving related injuries and the correct first aid for each. Additionally, there are guidelines for professional medical intervention which a physician can follow to institute the appropriate drug and intravenous fluid treatment of an injured diver.

Two things became apparent to the DAN staff by late 1982. One, that there was a growing demand by divers for access to diving medicine information and



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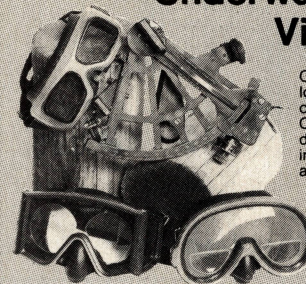
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## Rx FOR DIVERS

second, that donations were too inconsistent a means of financial support. In August 1983, the Diving Accident Network became a membership association with a new title: the Divers Alert Network. The diving emergency services composition of DAN remained unchanged. DAN's goals for improved dissemination of diving medicine information will be accomplished through a newsletter, Alert Diver, DAN articles in diving periodicals, promotion of the *DAN Underwater Diving Accident Manual* and DAN sponsored sport diving medicine courses. Membership in DAN was made inexpensive so that many divers could participate and benefit from the diving medicine information, while at the same time providing the vital support which DAN needs. DAN members receive a manual; a membership card with the DAN emergency number and list of diving accident symptoms; tank decals with the DAN emergency number; and Alert Diver, the newsletter which discusses diving medicine for the layman as well as professional.

The Divers Alert Network, directed by Dr. Peter Bennett, incorporates the Diving Accident Network of hyperbaric facilities organized into the following regions:

**Southeast:** Dr. G. Yancey Mebane/Chris Wachholz (919) 684-8111 (Durham, NC); North Carolina, Tennessee, South Carolina, Georgia, Alabama, Florida, Caribbean.

**Northeast:** Dr. Roy Myers/Charles Gross (301) 528-6152 (Baltimore, MD); Pennsylvania, Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Delaware, Maryland, District of Columbia, Virginia, West Virginia.

**Midwest:** Dr. Eric Kindwall/Larry Stevens (414) 647-7466; (414) 649-7920 (Milwaukee, WI); Wisconsin, Michigan, Ohio, Indiana, Kentucky, Illinois, Minnesota, Iowa, North Dakota, South Dakota, Wyoming, Nebraska.

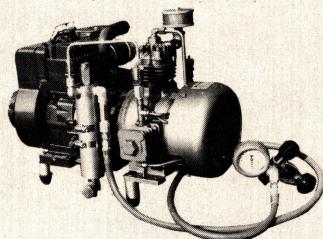
**Gulf Coast:** Dr. Keith Van Meter/Jim Persels (504) 363-7655 (New Orleans, LA); Louisiana, Texas, Mississippi, Arkansas, Missouri, Kansas, Colorado, New Mexico, Oklahoma.

**Northwest:** Dr. Robert Crawford/Mr. Richard Dunford (306) 624-1144 (Seattle, WA); Washington, Oregon, Idaho, Montana, Alaska.

**Southwest:** Dr. Paul Linaweaver (805) 964-6211 (Santa Barbara, CA); California, Nevada, Utah, Arizona.

**Pacific:** Admiral Charles Waite, M.D., retired/Frank Farm (808) 523-9155 (Honolulu, HI); the Hawaiian Islands, Mariana Islands, Marshall Islands, Caroline Islands, Western Samoa, Johnston Island, Wake Island, Howland Islands, Palmyra, and Kingman Reef.

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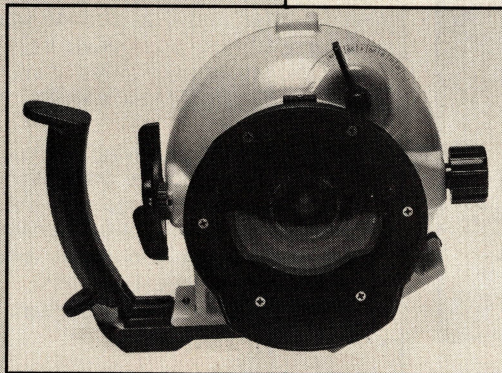
## MAKO

COMPRESSORS INC.

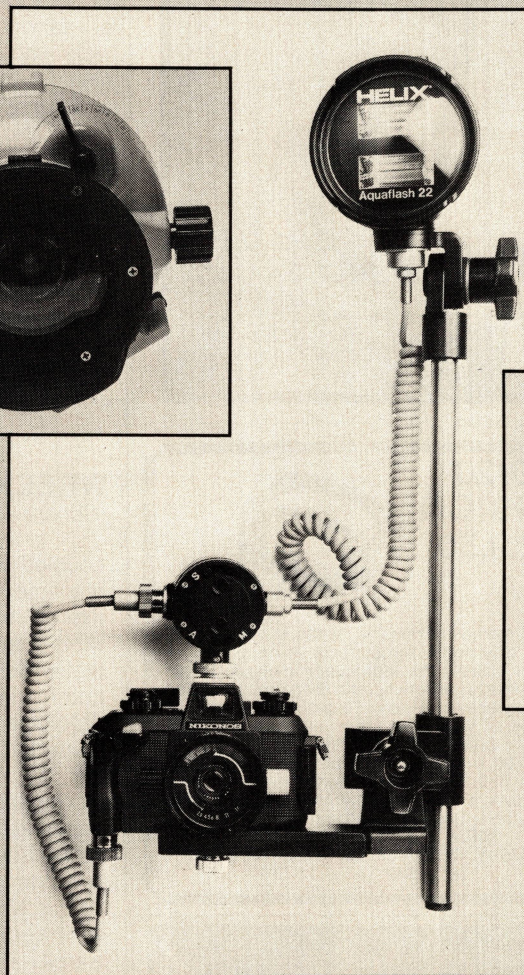
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Many photographers prefer to house their 35mm cameras for underwater shooting. The Helix/Kamba is the perfect housing for any Canon A series cameras, with power winders, or for the Nikon EM. The housing features reflex focusing, and allows external operation of all major camera functions. Its sturdy lexan body is waterproof to a depth of 200 feet, and it includes a standard dome port for 17-100mm lenses. The Helix/Kamba housing is easy to handle and weighs less than 6 lbs. without camera. It comes with tools, O-rings, grease, standard focusing rings and a +4 diopter correcting lens.

And for the serious underwater photographer looking for a powerful flash unit, the Helix Aquaflash 22 is hard to beat. No comparable flash unit offers all the features of the Aquaflash 22 at such an affordable price. It features twin reflectors for even coverage, automatic operation even when hand-held, manual control with full and  $\frac{1}{4}$  power settings, a built-in slave sensor and an extra-long flash arm.

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sion, these compact cameras are waterproof to a depth of 150 feet. They both feature built-in electronic flash and automatic film advance. The 110 has automatic focus and 3 manual exposure settings, while the 35mm version offers apertures from f2.8 to f22 and variable focus from 3 feet to infinity.

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## WRECK FACTS

(Continued from Page 8)

coupled with a sustained interest in the maritime heritage-at-large. I believe this interest is diverse enough to create a rallying point which will vividly demonstrate that while groups such as divers, salvors and marine archaeologists have inherent problems, these problems can be overcome through dialogue and understanding. The Alliance is developing in a very systematic way and we are fortunate in securing a highly talented group to accept leadership positions in the organization during its formative stages."

The National Council on Underwater Archaeology—chairman, Dan Koski-Karell, is one of seven Alliance committees. The others are: Legislative Affairs—John Fine; Membership—Betsy Royal-Edmund; and Publications—Alan Edmund. Others will be elected to chair the Technical Review; Budget-Finance; and Grants-Funding-Proposals committees.

Alliance chairman Duncan Mathewson stressed, "To make our organization work, everyone must get involved through their regional chapters. We need ideas and input from everybody in order to get these local chapters going. Contact the coordinators in your area and start planning some projects with them to promote archaeological diving along your coast. Our executive committees will help in any way possible, but it is up to the divers to determine what they want to do within the Alliance."

The regional chapter coordinators include: North Atlantic—Deborah Whitcraft who, with Bob Yates, will organize the Jersey Shore members. Barry Clifford will organize the New England group. Delaware, Maryland, Virginia and the Canadi-

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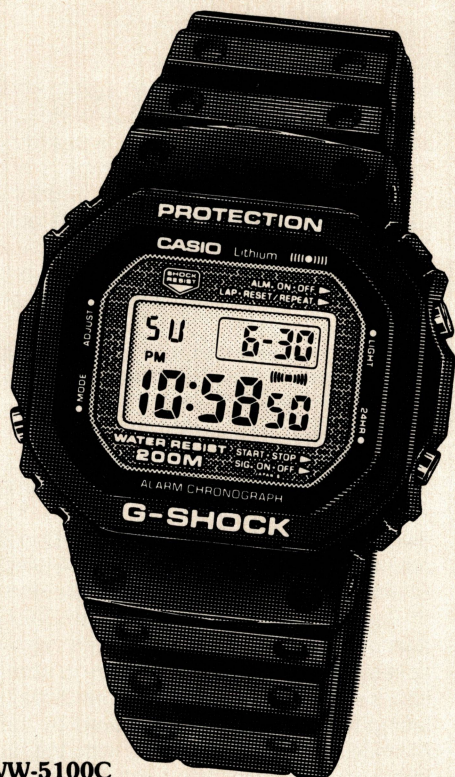


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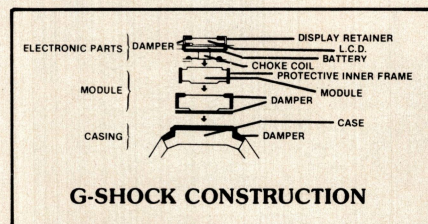
WW-5100C

Casio has taken its best selling diver's watch and has gone one step further. The Casio **WW-5100C** not only offers you 200 meters of protection but can withstand the shock and vibration of a 33-foot drop and gives you super-accurate readings at temperatures as low as  $-30^{\circ}\text{C}$ .

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and 1st-2nd finishes to 1/100 second accuracy. And a "beep" sounds at 10 minute intervals during timing, even under water.

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Another advantage of this unique timepiece is that it keeps a continuous display of the time in all modes no matter what mode is being used. And with the touch of a button you can instantly have 24 hour European/military time. Quartz accuracy to  $\pm 15$  seconds per month, night light and 7-year battery top off its list of features.

The **WW-5100C** is constructed of rugged, lightweight black polysulfone for the band and outer frame. Stainless steel for the inner frame. It's yours for only **\$69.95**. The 200-meter all-stainless model **DW-1000** and stainless case and resin band model **DW-1000C** are also available for **\$49.95** and **\$39.95**, respectively. All polysulfone 100-meter model **W-400** is now only **\$24.95**. These three quartz beauties offer all the functions of the WW-5100C except 33-foot shock resistancy and wide-temp super-accuracy.

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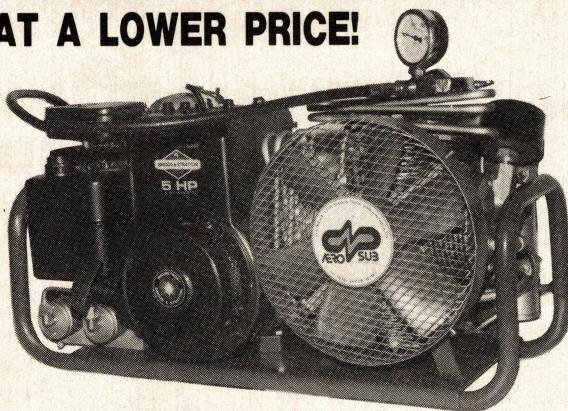
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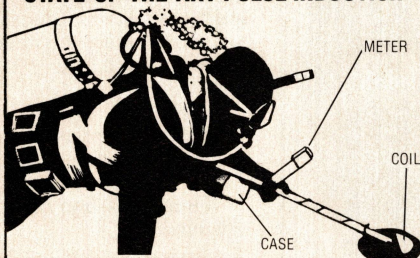
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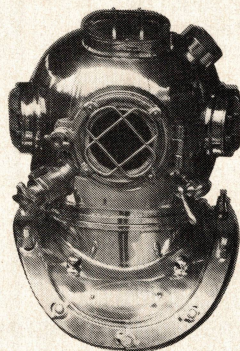
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## WRECK FACTS

an maritime provinces are open and need coordinators. Howard Tower heads the South Atlantic chapter and is organizing the Georgia group. Alan Rieby is organizing the North Carolina group. South Carolina and Florida need coordinators. The third and fourth regional chapters are the Caribbean Basin and the Gulf Coast, including Mexico. They need coordinators as well.

If you are interested in coordinating a region or in just joining the Alliance, write to: Atlantic Alliance for Maritime Heritage Conservation, P.O. Box 27272, Central Station, Washington, DC 20005. You will receive a newsletter and further details about the Alliance. It's important too, for divers to realize that Atlantic means not only the eastern seaboard of the United States, but also eastern coastal sectors of Canada, Mexico, the Caribbean Basin and other nations of the western hemisphere facing the Atlantic Ocean. In addition, nations in Europe and Great Britain facing the Atlantic are considered by the Alliance as being in harmony with the interests of the organization and their membership is encouraged and welcomed. Great Lakes divers are welcome, but consensus is that they are already organized, hence no chapter was established in that area.

Executive director Charles McKinney underscored the fact that the Alliance remains a grassroots effort to organize, mobilize and unite literally millions of people with a common interest who have remained a silent majority because of lack of organization. "The Atlantic Alliance," McKinney says, "seeks to provide that organizational framework and become a force to be reckoned with regionally, nationally and internationally."

## U/W EASTER EGG HUNT

Mountain Lakes Diving Center of Sparks, Nevada is sponsoring its Third Annual Underwater Easter Egg Hunt on



Saturday, April 28 at Sand Harbour, Lake Tahoe. Last year's hunt drew 150 divers and \$5000 in prizes was given away. For more information contact Mountain Lakes Diving Center, 2136 Prater Way, Sparks, Nevada 89436.



## New model features durability & comfort

# VIKING SPORT 80X

BY JIM WALKER

**The new Viking Sport 80X has some important features. It is constructed from a thin, flexible layer of rubber, with a synthetic rubber coating outside and a woven polyester backing inside. This makes the suit strong and easy to clean.**



**A**s you read this article the wind may be howling outside your door and snow may be falling. Or, the weather may be great, but perhaps the water isn't as warm as it used to be. If so, you may be in the frame of mind to seriously consider the purchase of a drysuit. And, the Viking Sport 80X is one to consider.

The 80X is not just a new name for the already well established Viking Sport. It replaces previous sport diver models and, while it utilizes the same design concept, it has some important new features which improve durability and comfort.

Viking approaches drysuits from a different angle than other manufacturers. Instead of foam neoprene, the company uses a thin, flexible layer of rubber as your body's first line of defense against cold water. The second line of defense is what you wear under the suit—this provides warmth.

The suit material is actually composed of three parts: A thin coating of synthetic rubber surfaces the outside of the suit. This is designated EPDM and is resistant to damage from ultraviolet light and ozone. The exterior is very tough and presents a smooth surface to the environment which reduces the chance of snagging the suit. It also makes it easy to clean. If the suit does get punctured it is

extremely easy to patch.

The main layer of the suit material is natural rubber. An important feature of this arrangement is that it will not increase a diver's buoyancy significantly as neoprene suits do. The suit material won't compress at depth either. Thus, the 80X requires the diver to wear less weight (than neoprene drysuits) to begin with and won't lose buoyancy or thermal insulation at depth. The actual buoyancy of the suit system will depend on the thickness of the undergarments worn.

The rubber layer has a woven polyester backing bonded to the inside. This is a change over earlier Viking suits which had a tricot backing. The new fabric bonds to the rubber better, is stronger and easier to clean. Also, it doesn't stretch significantly so the suit can't balloon up under high internal pressure. The total thickness of the synthetic rubber/natural rubber/polyester is about 1.1 millimeters, allowing the suit to be very flexible. The 80X comes in orange only.

The seams of the 80X are sewn and then vulcanized under a black rubber tape, and stress points are reinforced. The suit is effectively one waterproof unit, entered through a sturdy, waterproof, bronze alloy zipper across the shoulders.

The boots are an integral part of the

suit. The heavy rubber soles have non-slip tread and are bonded to the suit under rubber tape. The boot toes and heels are reinforced as are the front of the legs up to the knees. While the boots will flex somewhat to fit into fins, those on the SKIN DIVER test suit were a bit too large for my normal fins and the heels stuck out well beyond the fin straps.

Aside from the waterproof zipper, there are only three openings in the 80X—the neck and wrists. The neck is sealed by a stretchy latex rubber collar, tapered so it can be trimmed to fit any neck. The collar is turned under to more effectively keep air from leaking out. It is glued, and taped to the suit after vulcanizing.

The suit also has an attached latex rubber hood. Since this doesn't offer much insulation, Viking provides a 10 mm thick polyester foam hood lined on two sides with nylon. This is worn under the latex hood and can get slightly wet unless the diver wears a full facemask. Wet or dry, the inner hood provides good insulation.

The suit's wrists are sealed by latex cuffs, bonded to the sleeves in the same manner as the collar. Cuffs, hood or collar can be replaced easily.

To adjust buoyancy or insulation, air can be added to or released from the suit through two valves. The inflation valve is on the diver's chest and is push-button operated. A low pressure hose, provided with the suit, channels air to the inflator from the diver's regulator first stage. The deflation valve is on the diver's left shoulder. It will vent on demand when pushed in. An excellent feature of this valve is that it can be quickly adjusted to maintain a range of internal suit pressures. When internal pressure rises above that selected, the valve functions as an overpressure relief valve. This helps the diver avoid uncontrolled ascents.

Viking offers two versions of drysuit underwear. The Thermal Underwear is made of the same material as the insulating hood (10 mm polyester/nylon) and sells for \$146.50. This is for very cold water and can be worn over Viking's Light Underwear which is a much thinner polypropylene. It is designed to draw the diver's perspiration away from the body. It sells for \$43.

The Viking Sport 80X, especially the valves and zipper, should be rinsed with fresh water after a diving day. The suit should be dried thoroughly before storage and the zipper lubricated with paraffin wax as needed. The whole suit will fit into the small carrying bag (10 inches in diameter by 24 inches long) provided.

The 80X comes in five sizes to fit divers from 5'6" to 6'5" and comes with insulating hood, inflator hose, wax and repair kit. It comes with a limited warranty and sells for \$675.

For information on the dealer nearest you contact Viking Technical Rubber, Inc., P.O. Box 8236, New Haven, CT 06530; (203) 933-6744.



## TEXT AND PHOTOGRAPHY BY GERI MURPHY

**A**re you growing tired of the annoying task of keeping track of your bottom and surface times for repetitive dive calculations? If so, Tekna may have the answer to your problem.

The company has just introduced a new, inexpensive device which can only be described as a revolutionary development in time keeping. This little honey is not a pushbutton stopwatch or a wind-up alarm clock—it is a miniature computer which has built-in "intelligence."

Tekna's new timer can do many things to make a diver's life much more pleasant. It keeps track of total bottom time for the dive, freezes the number for reference on the surface and then erases the numbers at the start of the next dive. It keeps track of surface interval time, freezes the time at the beginning of the next dive and then erases the old numbers when you come up from the dive. It counts the number of dives for the entire day, going right up to nine (for gorilla divers). The best part is that the timer does all of this automatically. There are no buttons to push or switches to move. It provides all this information digitally, eliminating the need to squint and count the lines on an analog scale.

From the moment you get your hands on a Tekna Dive Timer, you'll find yourself liking it. The device is approximately the diameter of a silver dollar (one and three-quarters inches) and it weighs only one ounce. It can be worn on your wrist like a watch or attached to your instrument console. You hardly know you have it with you.

The timer is incredibly easy to use and requires almost no explanation. Strap it on and discover its unique functions as you go about making your dives. However, read the directions which come with this product so that you can properly clean and care for it.

### AN INTELLIGENT INSTRUMENT

When we say the Tekna Timer is "intelligent," we mean that it can "think" logically and perform functions according to a pre-defined program. For example, the Timer distinguishes between a brief surfacing for taking bearings and an actual second or third dive. If the diver does not remain on the surface for 10 minutes or more the Timer does not count the resubmergence as another dive. This procedure is exactly as prescribed by the U.S. Navy Tables.

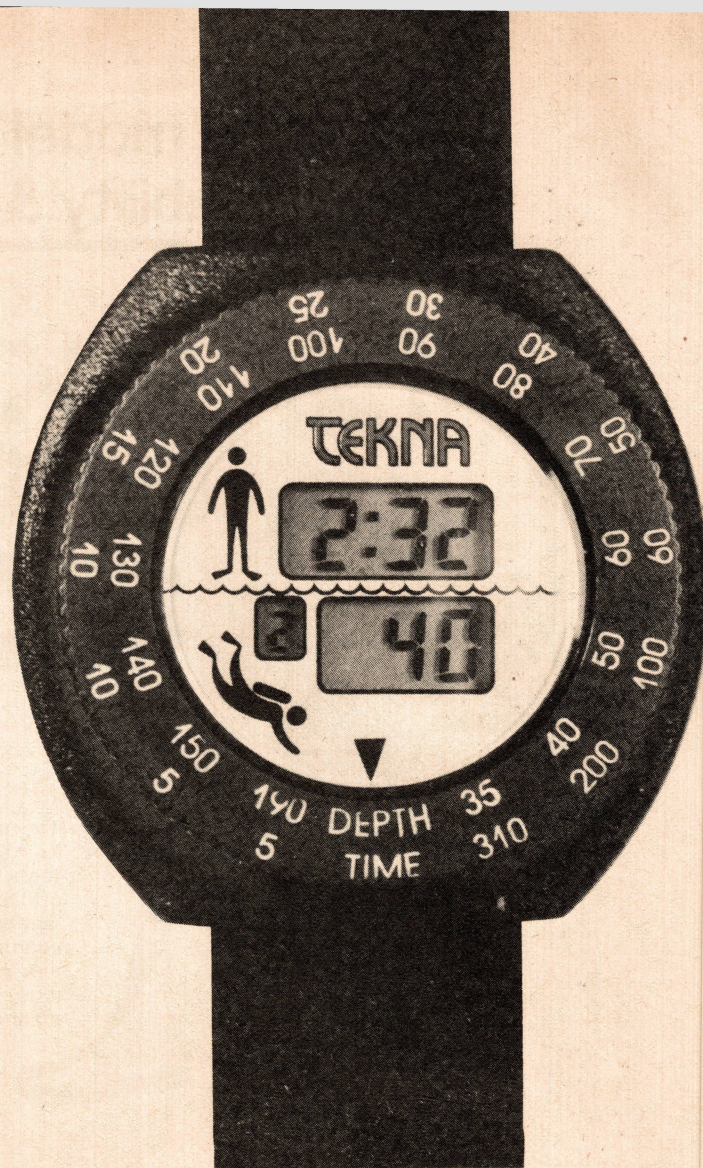
The timer also knows precisely when to switch on and off automatically. It begins counting bottom time when the diver reaches five to eight feet (there is some variance in switch-on depth). Exactly 12 hours after the last dive (when the diver is safely desaturated), the Timer turns itself off to conserve battery energy.

### DESIGN

How does this little Timer know precisely what to do and when to do it? The Tekna Timer is actually a simplified computer, miniature in size and ultra-sophisticated in design. The entire computer circuit is on a mono-chip wafer approximately one-quarter inch square.

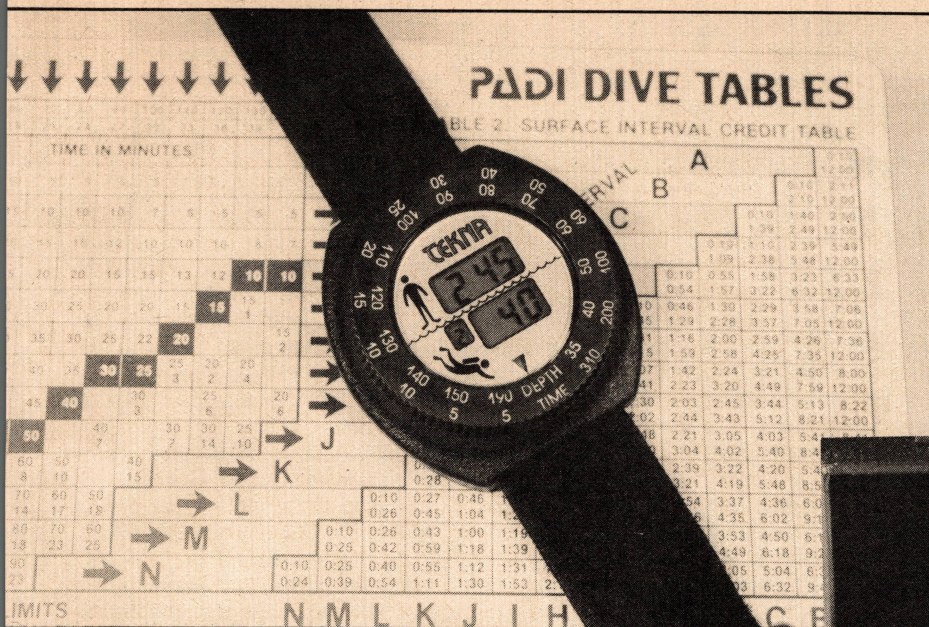
Packed into that one-ounce package is a miniature four-bit microprocessor, three liquid crystal digital displays (LCDs) and a 10 year shelflife lithium battery.

The computerized electronic circuitry of this device contains 2K bytes of ROM memory and custom designed computer program for counting bottom time, surface time and number of dives. The entire package is encapsulated in a thermoplastic case, pressure tested at the factory. A bezel around the outer edge of the display face provides the diver with a handy no decompression limits table with depths from 35 to 190 feet (metric bezels are also available). The Tekna Timer, along with an accurate depth gauge and submersible pressure gauge makes

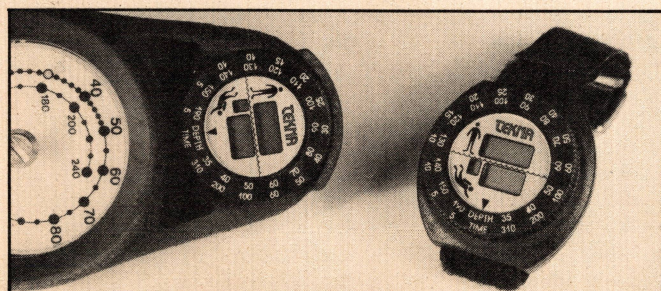


# TEKNA'S DIGITAL DIVE TIMER





The Tekna Digital Dive Timer is battery operated and depth activated. It keeps track of dive time, surface interval and number of dives made in a day. The bezel has the no decompression limits marked on it. The Timer is available in a wrist model (below) or as a module which snaps into the Tekna Combo Instrument Console. It also comes with the Tekna Maximum Depth Gauge (below left).



the ideal combination for calculating decompression times, repetitive dive times and dive profile planning.

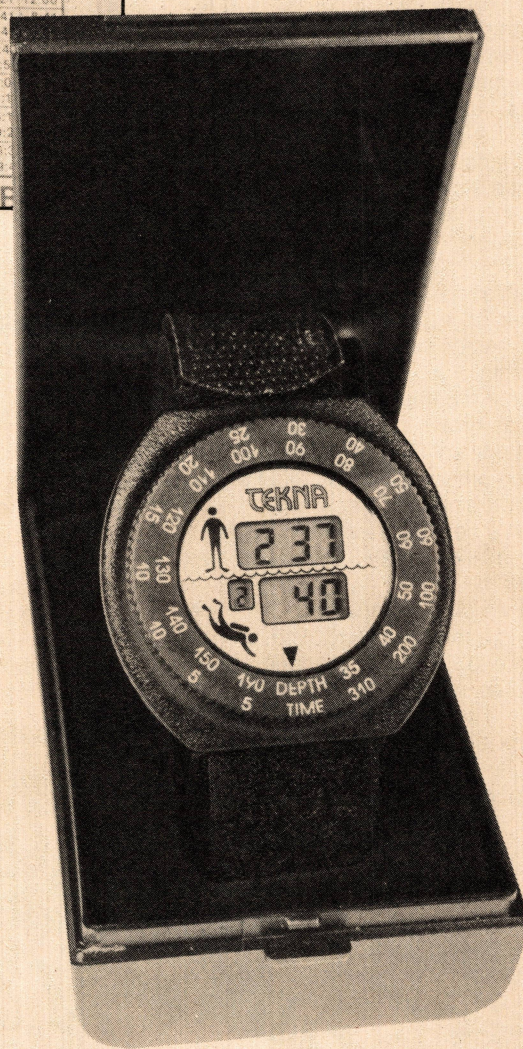
### BATTERY LIFE

The Tekna Timer is battery powered for total automation. There are no through-case fittings for pushbuttons or switches of any kind. Battery power and electronic functions are switched on and off by pressure differentials.

But what about the battery? How long will it last and how reliable is it? This is where the Tekna Timer really shines. The Timer is powered by a three volt lithium battery which has a 10 year shelflife (if not used) and provides 1000 hours of continuous use. How is this possible? The Tekna Timer has a highly sophisticated and advanced form of computer technology. It is built with a CMOS integrated chip which draws one-tenth the electrical power of normal computer circuitry. CMOS is an acronym for Complementary Metal-Oxide Semiconductor. Put simply, a CMOS circuit is made with silicon chips that have a metal-oxide coating on both sides and have extremely low electrical consumption. Furthermore, CMOS circuits can be used in small air-tight devices because very little heat is generated. CMOS circuits are extremely reliable despite temperature fluctuations or slight changes in battery power.

One word of caution. Do not be misled by the impressive number of 1000 hours of continuous battery operation. It should be remembered that the Timer runs for 12 hours *after* the last dive. Under normal conditions the Tekna Timer should operate for a minimum of 50 diving days on a single battery.

Battery change is a simple matter of mailing your Timer back to the factory. This will cost \$5. Tekna requires the battery installation be done at the factory because there is also a pressure test performed to ensure watertightness. The Timer is so light the cost of mailing it to the factory is quite reasonable.



Each Tekna Timer is put through an extensive quality control procedure before it leaves the factory. The instruments are tested on a master computer which can diagnose any electronic problems. Every Timer is pressure tested to a simulated depth of 250 feet. The Tekna Timer comes with a one year warranty against material defects and workmanship.

The Tekna Digital Dive Timer is available in three different forms. The T-3100 wrist model (\$69.95) comes on a strap with a self-tensioning stainless buckle. The T-3101 button module (\$59.95) snaps into the Tekna Combo Instrument Console. The T-2670 comes in a console with the Tekna Maximum Depth Gauge. This combo sells for \$129.95.

For more information about the Digital Dive Timer or other Tekna products write to: Tekna, 1075 Old County Road, Belmont, CA 94002.



**W**hat is PADI today? Simply the largest scuba certifying and dive retailer organization in the world. It has 50 full-time employees and is an association made up of 775 member stores (the majority of dive stores in the U.S.) and over 8200 *active* instructors. With headquarters in Santa Ana, California, PADI has major training centers in Chicago, Illinois and San Diego, California. Both colleges train instructors with knowledge and skills in all phases of diver education; the PADI International Instructor Training Center in Chicago specializing in continuing education concepts, the PADI International College in San Diego focusing especially on the retail business aspects of diving. Programs are run in over 60 foreign countries. Branch offices are found in Canada, Japan, Sweden, Australia and Norway. The European Service Office is in Switzerland.

PADI offers certifications in basic diver, open water diver, advanced open water diver, master scuba diver, and various specialty programs. The professional membership levels are divemaster, assistant instructor, instructor, open water instructor, master scuba diver trainer and master instructor (although divemasters are optional members).

PADI has grown rapidly in the last few years. It certified 154,000 in 1982—more than all the other U.S. certification organizations combined. At this writing, the organization's certifications are up 32 percent over 1982; the 1983 total is estimated at over 190,000.

While the numbers indicate exceptional growth and a thriving association, there is much more to PADI. The real question is, "Why do so many divers choose PADI training?" Two important reasons why are: 1) the agency's philosophy, and 2) the Modular Scuba Course—cornerstone of the program.

## PADI PHILOSOPHY

The PADI philosophy, as originally set out by president Ralph Erickson, is to provide safe, thorough training, stressing the most important knowledge and skills. The method is to present diving as a fun activity and to present the course sequence in the manner which best accomplishes the stated desired results.

According to Al Hornsby, vice-president of education and public affairs, "It has been well-established that people learn best in small doses that advance from simple to complex, with a lot of repetition of the most important elements. In scuba diving there is a broad range of skills and information which could be presented, some of which can be extraneous, or at least not directly useful most of the time. Our beginning level courses stress the pertinent information first."

According to Hornsby, "Because our training philosophy is built around the concept that divers should have a series of enjoyable, educational courses available to them, it is absolutely essential that we do a good job in their *first* courses. We really feel that our system is dependent on customer satisfaction to be successful. Let's face it; if beginning level divers don't find their initial training to be valuable and enjoyable, and if they don't feel competent and comfortable in the water upon completion, they certainly aren't going to come back to us again. Our courses *have* to be good—or our system fails."

A major purpose of PADI's training sequence is to decrease diver dropout by keeping the student/diver motivated and enjoying learning more. Staying in the course progression system (basic to

open water to advanced open water, etc.) expands the diver's experience in a safe, supervised way while also increasing social interactions with an increasingly larger group of more involved divers.

## MODULAR SCUBA COURSE

PADI's Modular Scuba Course is designed to accomplish these goals of optimum sequential learning and enjoyment. Course information and skill lessons are sectionalized (modular) to allow flexibility and to increase retention following the small dose/high practice concept. The course is used in the basic and open water certifications.

As the cornerstone of its educational system the Modular Course has been the prime factor in the popularity of PADI's diver training programs around the world. Sometimes misunderstood by non-PADI instructors, the Modular Course, introduced in 1978, has managed to make the transition from traditional scuba training methods—which often spent proportionately more time on non-essential academics and exercises—to a program which was more time effective, yet sacrificed none of the recognized required information and diving skills.

The Modular Course consists of an introduction/watermanship session (with watermanship evaluation—swimming, floating, etc.) followed by five course seg-

# PADI



photos/courtesy PADI



ments (modules): (I) Introduction to Diving, (II) Underwater Adaptations, (III) The Diving Environment, (IV) Effects of Depth, and (V) Review and Test. Along with these modules are five carefully sequenced pool sessions, then finally an open water familiarization session, two open water scuba dives and an optional open water skin dive. (More dives are made in the open water course.) Without going into details, the skills covered in these segments and the open water experience are similar to requirements of all other certification organizations.

What's different about the Modular Course is that the segments are designed to build gradually upon previous sessions and the lectures make major use of audio visual presentations to illustrate concepts and skills, thus shortening learning time. Emphasis is placed on hands-on practice rather than traditional lecture. According to Al Hornsby, "When you compare, hour to hour, the course we teach in the modular program with a traditional course, overall length of hours may not be quite as long . . . maybe 22, 23 or 24 hours as opposed to 30. But, if you compare the amount of time in the water practicing actual diving-related skills, you will find ours to be superior. We have less explanation time and less extraneous time. In terms of pertinent scuba skills, the Modular Course cut nothing out. Instead, we

saved time by careful reorganization."

These changes were found to reinforce skill and knowledge retention and heighten student enjoyment. The result is a basic diver course which adequately prepares the diver, with a stipulation (stated on the card) that the diver must be equipped with an alternate air source. The basic diver student is informed, right from the beginning, that this certification is only the first step in scuba training, and that much remains to be learned. While the basic diver is similarly qualified to other basic divers and can certainly pursue the sport on his/her own, the PADI system encourages additional training, on an ongoing basis.

The changes in the program, rather than encouraging divers to take the least amount of training possible or to stop at the entry level, has instead encouraged divers to attain higher certifications. In 1983, while PADI's basic diver certifications decreased substantially, the open water, advanced open water, and other upper levels have shown monumental growth. In 1978, basic diver certifications were 42 percent of the PADI total. As of May 1983, basic was down to 17.6 percent; having declined every year since 1978. Currently, 81 percent of all PADI certifications are open water or higher. This constitutes a tremendous increase in diver activity, experience and safety.

While the modular program has been a major contributing factor to PADI's success, it is by no means the whole story. PADI has initiated a number of instructional/marketing programs that have taken scuba training forward by leaps and bounds.

Recently there has been a growing concern and outcry from resort operators and dive boat skippers over the issue of improperly trained or out of practice divers showing up on dives and creating a hazard for themselves and others. While the dive industry in general has grappled with this issue, PADI has taken some specific steps to correct it. At the same time, these corrective steps work toward correcting the problem of diver dropout.

## SCUBA REVIEW

The PADI Scuba Review program is designed to decrease diver dropout and increase diver safety by providing a painless method for reentry into the sport after a lengthy layoff—without recertification. Divers coming back into the sport are familiarized with the latest concepts and are refreshed on information and skills learned previously.

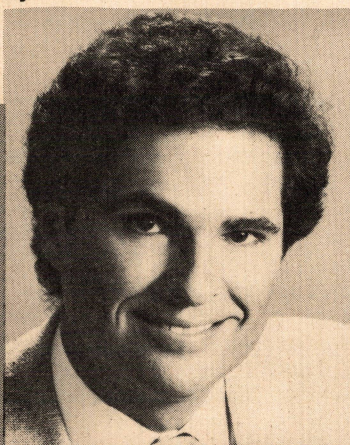
The program consists of a self study workbook for knowledge review. When this is complete, the diver takes a quiz which is evaluated by an instructor and discussed with the diver. Then, a scuba skills session is completed in a pool, evaluated by an instructor. At this point, the review is complete and the diver is registered at PADI Headquarters. The instructor attaches a year-dated decal to the diver's certification card.

## ENVIRONMENTAL ORIENTATION

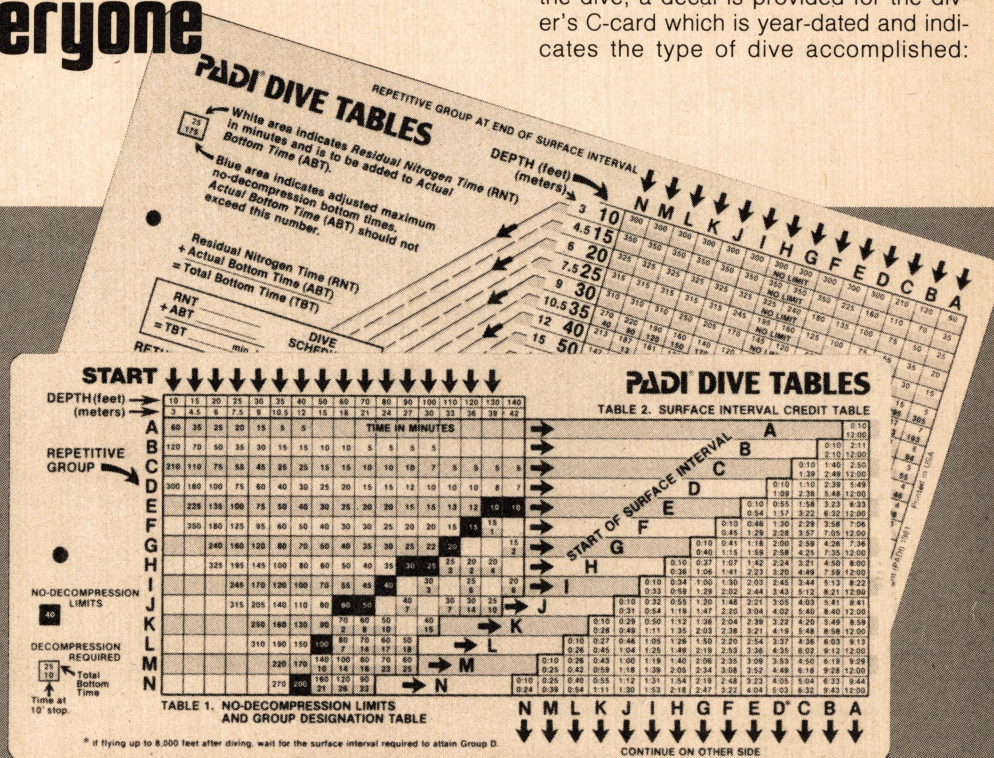
The PADI Environmental Orientation can be the final phase to a Scuba Review or can be a separate program. A PADI divemaster, assistant instructor or instructor gives the diver an orientation to the area to be dived and then he/she is taken on a supervised dive. At the end of the dive, a decal is provided for the diver's C-card which is year-dated and indicates the type of dive accomplished:

# Dedicated to making diving better for everyone

By Jim Walker



Al Hornsby (above), PADI's vice president of education and public affairs, says, "...our training philosophy is built around the concept that divers should have...enjoyable, educational courses available...."





warm ocean, cold ocean or fresh water. More categories are being added.

### CREDIT CARD LOGBOOK

Related to this issue is the difficulty faced by charter operators in actually determining the experience level of the divers they serve. The logbook, though an obvious answer to the problem, has proved only marginally successful in the past. The chief difficulty seems to revolve around the awkwardness of carrying the log (they have always been too large to fit in a wallet) and the bother of recording the necessary information. To combat this problem, PADI has recently introduced a revolutionary new logbook: the Credit Card Logbook. Credit card sized, but actually holding data from more dives than other common logs available (32 vs. 25), it actually fits in a plastic sleeve with the diver's C-card and a credit card dive table. The entire package fits easily in a wallet. Additionally, the necessary dive information is easily recorded in check-off boxes; each page also contains a dive profile computation form.

### SPECIALTY COURSES

PADI divers have a host of specialty certifications available to them—37 at this point and more added all the time. (An advanced open water diver picking up five of these specialties plus a divemaster or rescue diver course is eligible for the master scuba diver rating.) Some examples of these specialty subjects are wreck diving, underwater photography, ice diving, research diving and equipment specialist. There are a number of standard specialties and also distinctive specialties which allow instructors with expertise in very particular types of activity, after PADI course outline approval, to offer this instruction.

### C-CARDS

For each level of training accomplished, including specialty ratings and distinctive specialty ratings, a PADI diver gets a certification card with his/her picture on the back—the Positive Identification Card—the first such card created in the diving industry. PADI has a unique, double entry computer system for certification card processing. After the correct information is entered into the system, the student's history file is created and then the computer prints out the C-card along with the validation card (a permanent record). The C-card, with picture, is then laminated and returned to the diver by computer printed label. The whole process averages only a three day turnaround at headquarters. Replacing a lost card is even easier.

### PADI TRAINING FACILITIES

Dive stores and resorts utilizing the PADI training system are eligible to qualify as PADI Training Facilities. These facilities must meet certain standards of busi-

ness operations. A Training Facility can further qualify for rating as a Five Star Facility. The Five Star rating system identifies excellence in five areas of business: pure air, scuba service, community involvement, educational proficiency and business ethics. Even after a facility is able to meet the stringent standards, the Five Star Facility is continually evaluated to ensure the facility continues to maintain Five Star excellence. In patronizing the Five Star Facility, divers know what to expect from the store in terms of quality, service and education.

### REGIONAL TRAINING COORDINATORS

PADI has five Regional Training Coordinators (RTC). These are full-time professional field representatives. Their areas in the U.S. are: western, southeastern, northeastern, and midwest. There is a combined foreign area of Europe, Africa and the Indian subcontinent. (A fifth U.S. RTC is scheduled to be added in 1984). These coordinators are paid PADI staff members with extensive retail/management background and strong instructional experience. They assist in the implementation and quality control of programs at training facilities and work with an in-house business consultant to help dive stores in business matters and serve as the local membership's liaison with headquarters. The RTC's help headquarters keep closely in touch with what is happening in diving and the need for new programs or materials.

### MARKET RESEARCH/PROGRAM IMPLEMENTATION

PADI's sensitivity to the latest trends in diving and divers isn't limited to the RTCs. The agency is constantly conducting market research of its own through surveys of its divers, members, and training facilities. "PADI spends more time on market research than anybody in the diving business," said Hornsby. "We don't feel PADI should wait to find out what trends are developing in the field; instead we actively search out the needs and create the programs to meet those needs."

When a necessary program or potential problem is uncovered in the field, PADI can act on it. With respect to exerting influence externally, PADI often sponsors symposiums and contests such as the Annual U/W Photography Search/Competition. The RTCs conduct instructor educational seminars (64 in 1983) and other members of the headquarters staff conduct retail management programs.

The headquarters structure also allows quick reaction. The board of directors makes long term decisions, but the executive committee, meeting monthly, acts on more immediate needs; such as the implementation of a new program or production of support materials. The daily decisions are the responsibility of Al Hornsby and Gary Prenovost, vice-presi-

dent, finance and operations.

PADI is an educational organization which reinvests all monies generated back into development and maintenance of its programs. It does not hold a tax exempt status, however. Thus, the management is based on the corporate concept and is not a voting democracy. This status also preserves PADI's legal right to lobby on political issues affecting diving. PADI is the only diving certification organization which is a member of the National Ocean Industry Association, which lobbies in Washington, D.C..

### FACILITIES/MATERIALS

The physical facilities at PADI Headquarters also simplify program implementation. In addition to the computerized filing system, PADI maintains an in-house publishing system; with computerized typesetting, capable of carrying textbooks and other publications from inception through to completion (in a matter of weeks, if need be), excluding color separations and the actual printing. This keeps the cost of production down tremendously and thus keeps the cost of materials to the consumer lower. The bulk of PADI's current educational programs are now written by Alex Brylske.

In addition to a host of support materials, including audio/visual series and texts such as the *PADI Diver Manual* and *Advanced Diver Manual*, PADI produces four regular publications. The *Undersea Journal*, *Dive Industry News*, and *Diving Ventures* are all published four times a year. The *Retail Dive Travel Handbook* is produced twice a year. The *Undersea Journal* (four color) has news topics, diving medical research information, discussions of new programs, editorials, surveys and even employment listings for instructors. *Diving Ventures* (also four color) is the publication for members of the PADI Diving Society—*Diving Ventures International*. *Diving Ventures* has an extensive calendar section listing dive events, training courses and travel programs offered by dive stores all over the world and a resort guide in every issue. The resorts featured, called *Resort Destinations*, have been inspected by staff members prior to publication. DVI members receive discount coupons usable at those resorts as well at PADI Training Facilities. *Dive Industry News*, known as the trade journal of the diving industry, has editorials and articles on dive business and is sent free of charge each quarter to all dive stores, manufacturers and dive travel operators. The *Retail Dive Travel Handbook* allows dive store owners to quickly provide divers with all the needed information to choose quality diving resort destinations and to actually help them with their vacation bookings. It has the retail information on the resorts featured in *Diving Ventures*.

(Continued on Page 126)



# DIVETRONIC INSTRUMENTS

## Swiss made High-Tech for safe diving

**D**ivetronic Instruments A.G. is a company with a mission: Increase the safety and pleasure of diving through high technology. The company's initial product, the Deco-Brain diving computer, uses microprocessing technology to consolidate the functions of several conventional diving instruments into one unit. The Deco-Brain was invented by Juergen Hermann, a Swiss genius with a concern for save diving.

Divetronic Instruments was founded October 8, 1982. The company is an unusual mixture of technological, diving and marketing expertise.

The technological and diving know-how is supplied by Hermann and his small but dedicated team of co-workers. The marketing know-how is provided by Bettina Merlin, president of the company's U.S. subsidiary.

Hermann became interested in diving at the age of 16. He began by reading books authored by Professor Hans Hass and by seeing U/W films. Years later, while developing the Deco-Brain, Hermann worked with Hans Hass, who was so impressed with the product that he backs it with his name.

Hermann became determined to improve diving safety after his brother had a close call in 1971 in the Mediterranean. Hermann felt such accidents could be avoided if a diver could be relieved of the calculations needed to obtain the information for safe diving.

The young inventor (born July 24, 1955) was well-equipped to develop a diving computer. In 1980 he received a Master of Science degree from the Interstaatliche Ingenieurschule NTB, Buchs, Switzerland. He also worked for a year in an injection molding facility in Germany and served a four-year apprenticeship as a laboratory assistant with the chemical department of a company in Liechten-

stein. Ten years as a sport diver gave him the real world experience needed to develop reliable and practical diving instruments. The result was the Deco-Brain, a high-technology instrument. With the technical challenges solved, there still remained the marketing challenge.

### MARKETING HIGH-TECHNOLOGY

A skilled international marketer and negotiator, Bettina Merlin specializes in introducing new products. "I don't know how to take on an easy assignment," she says. Marketing the high-technology of

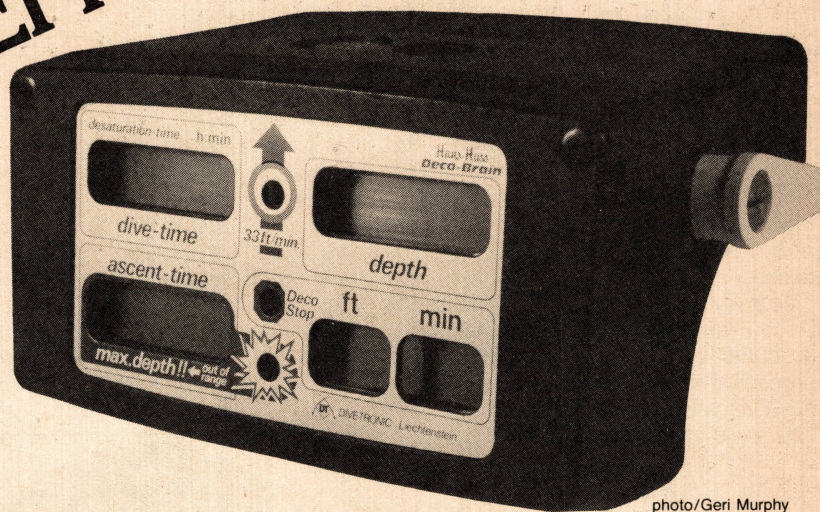
represented as many as 30 American manufacturers of medical, thermal energy, and communications equipment and of food products.

She is now developing an extensive advertising and trade show campaign for Divetronic and its Deco-Brain.

### THE DECO-BRAIN DIVING COMPUTER

The Deco-Brain is a microcomputer, worn on a diver's wrist. It combines the functions of the watch, depth gauge, altimeter and decompression tables.

Depth and pressure are sensed by a



photo/Geri Murphy



The Deco-Brain manufacturing facility is in Zurich, Switzerland. Here, six skilled technicians are engaged in the assembly and testing of Deco-Brain dive computers.

Divetronic is one such challenge, because it involves bringing new computer technology to the world of scuba diving.

Divetronic's Deco-Brain is marketed internationally—another area of expertise for Merlin. A native of Amsterdam, the Netherlands, she has traveled widely. She holds a MBA degree from Stanford University. During her career she has

pressure transducer, and time is tracked by a pressure-activated timer. Decompression tables are stored in the read only memory (ROM) of the microprocessor.

The diver turns on the Deco-Brain before diving. It immediately senses and records the altitude and starts the timer running. The Deco-Brain registers and files altitude or depth twice every second



after it is switched on. Using this information, it accumulates a depth time file. The microprocessor compares the totals in the file to the Swiss diving table appropriate for the altitude and determines the decompression plan necessary.

When the ascent begins, the decompression plan is shown through a liquid crystal display (LCD) that indicates the first decompression depth and time. As decompression is completed at that depth, an LCD ticks the time off to zero. The displays then give the next decompression depth and time. The LCDs will also indicate that no decompression is necessary, if that's the case.

Moreover, when the diver surfaces, the Deco-Brain calculates desaturation time. If additional dives are made, the microprocessor includes the effects of repeated diving and changes in altitude over time in its calculations.

### FEATURES

There are three more LCD displays as well as three superintensity light-emitting diode (LED) indicators on the face of the Deco-Brain. In addition to decompression depth and time, the display indicates:

- Air pressure in millibars
- Dive time (during the dive)
- Completed total dive time (during the surface interval)
- Actual desaturation time (during the surface interval)
- Actual dive depth
- Maximum attained depth, as a threshold value (during the surface interval)
- A two minute warning before the no decompression limit is exceeded
- Maximum ascent rate (33 feet per minute) exceeded
- Decompression level approach
- Diver out of range (if the diver dives outside safe conditions or uses Deco-Brain incorrectly)
- Battery charging necessary

Deco-Brain uses a complementary metallic-oxide semiconductor (CMOS) eight bit microprocessor with 10 kilobyte ROM for its assembler program and data base. It uses rechargeable nickel-cadmium (ni-cad) battery packs. The CMOS circuitry requires very little energy for operation and the ni-cad batteries store a great deal of energy relative to their size. The combination of the two allows up to 80 hours of operation without recharge. The batteries can be recharged from a 12 volt cigarette lighter or 220/110-volt line in four hours. The Deco-Brain can also be recharged when on.

Using the Deco-Brain is much safer than using U.S. Navy tables because the Deco-Brain uses five tables developed by the Deep Diving Research Laboratory in Zurich, Switzerland. These were developed for hyperbaric medicine for an entire population. The U.S. Navy tables, on the other hand, rely on the statistics de-

veloped from Navy divers who tend to be in their 20s and 30s and in very good physical condition.


### QUALITY AND CRAFTSMANSHIP

The Deco-Brain units are manufactured by Iftest A.G., Ennetbaden, Switzerland, to rigid quality control standards. All electronic components are tested to specification by a computer. The finished product is tested for water-tightness in a pressure-cabin filled with water.

Hermann's co-workers include his brother, Ruediger Hermann, a diver for five years and Roland Vogler, an engineering colleague who collaborated with Hermann on an early Deco-Brain thesis.

In developing the original product, Hermann also received assistance from Ben-

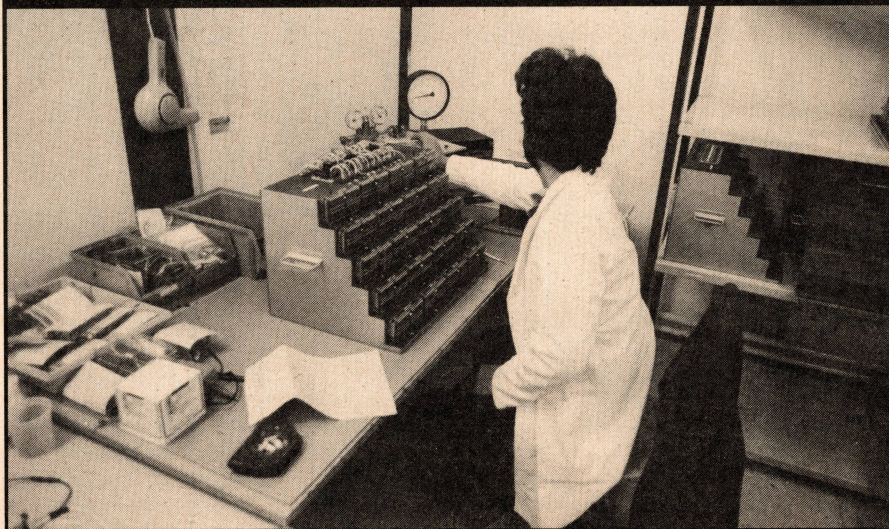
no Schenk, technical director of the department involved with pressure gauges at the University of Zurich. In new product development Hermann works closely with Roland Vogler and with another engineering colleague, Louis Streiff.

The instruments manufactured by Dive-tronic are designed and produced by individuals who are dedicated to improving the quality and safety of diving through technology. Bettina Merlin notes that, "Society can benefit greatly from advances in science. But new technology is meaningless unless it meets human needs and has the right niche in the international marketplace. Divetronic wants to combine technology and marketing to meet the needs of divers around the world." 



Juergen Hermann, Deco-Brain inventor. Bettina Merlin, U.S. subsidiary president.

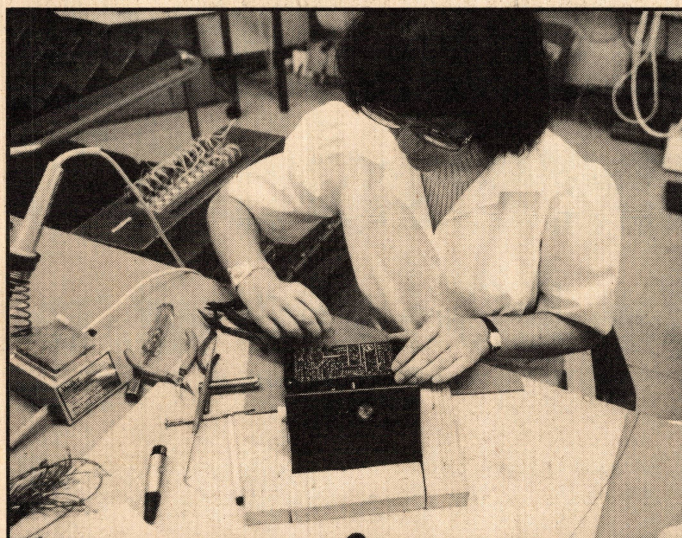
Below: The Liquid Crystal Display (LCD) panels for the Deco-Brain are plugged into a master testing device for evaluation of electronic integrity and performance through a wide range of temperatures. They are checked in both hot and cold.







Left: Designer Juergen Hermann oversees the testing of Deco-Brain motherboards. Each of the main computer electronics circuits goes through an extensive diagnostic testing procedure on a master computer in the lab.

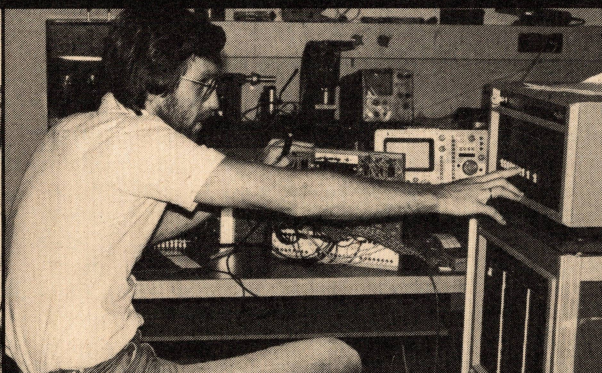


Deco-Brains are individually assembled under laboratory clean conditions. The technicians use anti-static cuffs and mats. Such care produces a dependable dive instrument.

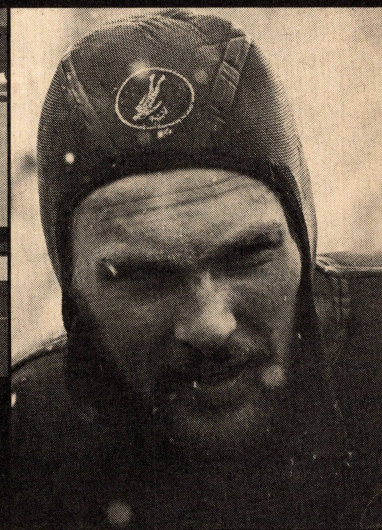


Circuit boards for the Deco-Brain dive computer are assembled by Swiss technicians by means of a highly sophisticated light beam which spots the location for each tiny component.

Bottom left: Each and every Deco-Brain is placed in a wet pot (depth simulator) and subjected to a full range of diving depths and times. Decompression readouts are checked and logged for future reference. The unit is also tested for water tightness.



Above: Juergen Hermann works in his private electronics lab in Liechtenstein and right, tests the Deco-Brain in a Swiss lake. He has been diving ten years.



photos/Paul J. Tzimoulis



## SDM SPECIAL SERIES ON REGULATORS

MAXIMUM II



# Poseidon's Cyklon Maximum II

TEXT AND PHOTOGRAPHY BY GEORGE COZENS

Two years ago SKIN DIVER featured a new regulator made by Poseidon Industries of Sweden and distributed exclusively in the United States by Parkway Fabricators, Inc. (now known as The Parkway System). It was the Cyklon Maximum and it came with high credentials. The Maximum was a direct descendant of Poseidon's Cyklon 300 and this was one of seven regulators selected by the U.S. Navy Experimental Diving Unit for the top performance category in its 1979 test of 36 scuba regulators.

Now enters the Cyklon Maximum II: It is the second generation, with improvements in design for increased performance and diving convenience.

The first stage of the Maximum II looks identical to that of the Maximum because it is. Poseidon calls this a "turbo assisted" balanced diaphragm first stage. This name is more than empty advertising jargon. The mechanism is activated by a diaphragm and balanced to minimize the effects due to changes in supply/cylinder pressure. "Turbo assisted" refers to a unique design feature: A small port inside the first stage channels some of the air flow by the underside of the diaphragm, thereby producing a slight venturi effect. This venturi draws the diaphragm in more

during larger air flows, resulting in a more constant intermediate pressure in times of high demand (flow).

The compact body of the first stage is brass, with a brushed chrome finish. Forged brass is used in the swivel yoke, and it, too, has a brushed chrome finish. Both the body and yoke, indeed, the entire first stage, are designed and rated to work at supply pressures up to 4300 psi (300 bar). For greater versatility when traveling abroad, a DIN connection is available to substitute for the yoke fitting. Fiber reinforced neoprene is used in the diaphragm, Delrin in the high pressure valve seat (because it resists deformation and has very good temperature stability) and stainless steel in the spring and balancing valve piston (a component of the HP valve). This first stage supplies intermediate pressure air at 135 psi and provides one high pressure port (marked HP) and four low pressure ports. Three of these are identified with LP for the attachment of low pressure accessories. The fourth is designated with R, for the primary second stage. It is specially marked because the orifice of this port is larger than the others, allowing for greater air flow to the second stage. A word of caution is in order: All five of these ports have

1/8 inch BSP (British Standard Pipe) threads, and although they are close to the 3/8 inch 24 thread size commonly used in U.S. made regulators, the two thread sizes are not compatible. To avoid damaging the threads and making a potentially unsafe connection, use a proper adapter (such as Parkway/Poseidon part #2293) when attaching U.S. hose fittings to the Maximum II.

Although environmental protection is not a standard feature on the first stage, an anti-freeze cap is available from The Parkway System. This cap can be filled with clear alcohol or a mixture of glycol and water and clamped into the sealing groove at the end of the stage as protection against freezing.

When I first saw a Cyklon second stage, I thought the shape was quite radical—in the least, it was very different from the conventional second stages at that time. My opinion soon changed to appreciation for its functional design. The Cyklon Maximum II second stage looks very much like its counterpart on the Maximum except for one important item: A switch on the backside of the stage. This switch and several less obvious improvements in the sophisticated mechanism are what lead to the second generation



Maximum. Its case and diaphragm/exhaust valve cover are made of impact resistant ABS plastic and all internal metal parts are nickel plated brass. For efficiency and simplicity the diaphragm and the exhaust valve are combined into a single component: A two and one-quarter inch diameter disk, made of a neoprene and silicone rubber compound and having a slightly convoluted shape. Unlike conventional diaphragms, this disk is not clamped at its perimeter; instead it is clamped between concentric rings in the case and the cover in such a way that the area inside this ring shaped clamp is free to flex. This serves as the diaphragm while the edge of the disk outside the clamp forms the exhaust valve. The exhaust valve at the end of the stage directs exhaled bubbles to the side, away from the diver's center of view.

The design of the second stage can be classified as a balanced, servo-controlled sleeve valve. Being balanced, changes in the intermediate pressure do not affect its performance. However, because the second stage is balanced, any overpressure in the intermediate pressure hose will not be released; so a pressure relief valve is provided in the hose connector. The servo-controlled sleeve valve is a unique, relatively simple valve in operation. Imagine a short length of hollow tubing, with a restricted opening at one end (to limit the flow of air entering the tube). This tube forms the control chamber. A series of holes drilled through its side allow air to leave the tube and pressurize a silicone rubber sleeve, which surrounds the outside of the tube. The sleeve valve is positioned inside the second stage, so that the rubber sleeve is adjacent to the ports in the main valve. As air enters the stage, some of it flows by the sleeve and through the main ports to the mouthpiece. At the same time, a little air enters the tube via the restricted opening, builds up pressure and expands the sleeve until it seals off the main ports. Should a diver inhale from the stage or depress the

purge the diaphragm will push on the servo valve, open it and dump air from inside the tube. As the pressure drops, the sleeve will shrink away from the main ports, opening them to allow a flow of air. When the purge is released, or inhalation stopped, the diaphragm disengages the servo valve, it closes, air pressure increases within the tube and the sleeve expands again, closing off the main ports. With this design a small, precise servo valve controls the opening and closing of a much larger sleeve valve, using air pressure to do most of the work.


The purge on the Maximum II consists of a neoprene rubber bar, which runs horizontally across the diaphragm/exhaust valve cover. It is easily accessible with gloves or mitts. One of the improvements in the Maximum II includes a fine spring coupling the purge bar to the diaphragm. Its purpose is to adjust the flow of air when purging: With the mouthpiece unrestricted, maximum air flow is achieved; but with the mouthpiece covered (i.e., with your mouth), the air flow is reduced to about one third the maximum, to avoid excessive flow.

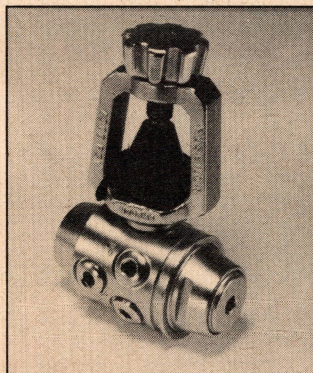
With about any finely tuned regulator freeflowing can be a problem. To reduce this the new Maximum has incorporated a two position switch to desensitize the second stage when it is not in use. Sliding the switch to the non-dive or minus position places a U shaped foot immediately behind the diaphragm, severely limiting its movement. A diver can breathe with the switch in this position, but inhalation is more difficult. Obviously, all diving should be done with the switch in the diving or positive position where the foot is moved out of the way, allowing the diaphragm complete freedom of movement.

The only routine maintenance suggested is rinsing the regulator in fresh water after use. Lubrication of the unit should be left to trained personnel; in any case, silicone spray or grease should not be used as these could damage the sleeve valve.

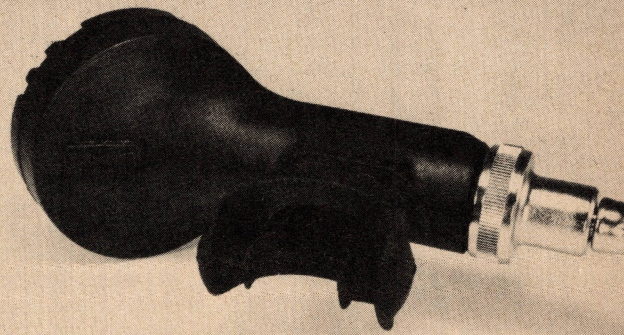
Professional service is recommended annually. The cost of this work will vary, of course, but should include only labor charges, since replacement parts are covered under the limited, lifetime, one-owner warranty.

My evaluation of the Cyklon Maximum II was made in a series of three dives, from the charter dive boat *Scuba Queen*, while anchored off Santa Catalina Island. On all dives the Maximum II performed very well. Inhalation and exhalation resistances were very minimal, and the unit supplied all the air I could handle even at depths to 100 feet. When taking a long slow breath, I thought I noticed a slight surging, but this disappeared on normal and gross inhalations. The regulator was found to be quite dry: Only in one position (on my back, with my head tilted so that the exhaust was pointed upward) did I sense any water leakage—and that took a little while to notice. No strange behavior was observed in any of the various regulator orientations tried. With the second stage switch in the minus position, there was no freeflow. With the switch in the positive position, freeflowing would start if the mouthpiece was turned upward while the stage was still full of air, but could be easily stopped by turning the mouthpiece down and pointing the exhaust up. Only one idiosyncrasy was noted: After orally clearing the flooded second stage, the first inhalation was sometimes accompanied by a small spurt of water which disappeared with the next exhalation. When the unit was cleared with the purge there was no water.

In conclusion, I was very satisfied with the behavior of the Cyklon Maximum II. From my limited evaluation I would consider it a high performer. Its sophisticated design, rugged construction, corrosion resistant materials, limited maintenance requirements and retail price of about \$220, should lend the Maximum II to about any diving application, sport or commercial. 



The Cyklon Maximum II's compact first stage is brass with a brushed chrome finish. It has one high pressure port, four low pressure ports. The second stage has a two position switch which desensitizes the unit when it is not in use and reduces the possibility of freeflowing.







photos/courtesy College of Oceaneering

# College of Oceaneering

## *Boasts Operational Open Water Bell/Sat System*

**T**he diver is not visible to the trained crew members anxiously awaiting topside, but because of improved underwater communications, they are constantly assured that he, working in the murky, bitter cold waters, hundreds of feet below them, is okay.

This group isn't searching for golden doubloons, long buried in the bowels of a sunken 18th century Spanish galleon. It's part of a team exploring for a black liquid almost as valuable, known as oil. Vast fields of it are known to exist in the waters in which they are working.

Jay Phillips from Scottsdale, Arizona is one member of the group. A professional diver working for SeaTec International in the South China Sea, he says "I've been on the Kokan Pioneer number one lay barge for 47 days. I've made some gas dives to 280 feet—good experience for a guy fresh out of school."

Jay will be returning to the states soon. "But, before I come home, I'm going to the Island of Bali in Indonesia to surf and girl watch."

Currently there are approximately 15,000 men and women working in waters all around the earth as commercial divers. They are drawn to the profession by the opportunity of earning big bucks in a relatively short period of time; the chance to travel to exotic places in the world; and the mystique that still surrounds deep sea diving.

About 1400 men and women graduate each year from the nine commercial diving schools in the United States. While the drop-out rate is high in the first 6 to 12 months in the field, the more motivated individuals who remain will earn between \$20,000 and \$40,000 the first year. It's not uncommon to earn \$50,000 or more after only a few years of employment.

Gone is the old image of undersea divers clad in their "John Wayne" suits, plying their trade using "Norwegian

steam," (brute force). Today, sophisticated equipment and methods have created a safer, more efficient U/W environment for divers.

The first requirement for any aspiring commercial diver is professional training from an accredited diving school. One of the most highly regarded training centers worldwide is the College of Oceaneering, headquartered in Southern California's Los Angeles Harbor.

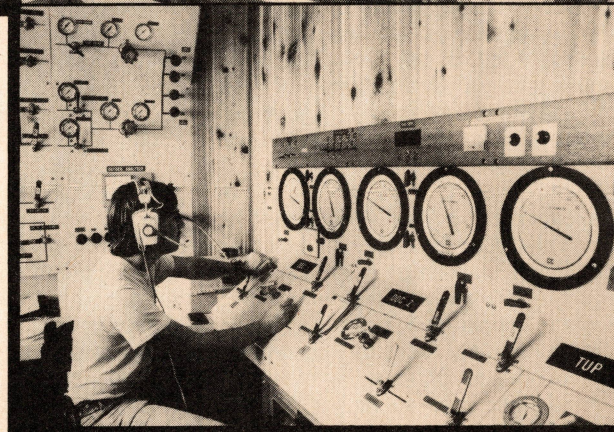
It has a completely operational bell/saturation system in open water. Lock-out dives are offered and the latest state-of-the-art equipment such as the JIM, a one atmosphere diving suit, is used.

Opened in 1939, the College of Oceaneering was originally called the Commercial Diving Center. The school has successfully trained more than 3000 divers for the rigors of the offshore oil industry, besides providing specialized training for many groups including foreign military personnel, the U.S. Coast Guard, the Occupational Safety and Health Administration and the Army Corps of Engineers.

Recently, the school was accredited as a junior college, allowing it to grant Associate of Applied Science degrees.

Under the leadership of Jim Joiner, the College of Oceaneering offers students 496 hours of in-the-water instruction under actual working conditions, 128 hours of practical application and 390 classroom lecture hours. Lecture courses required for the associate degree in applied sciences include English composition/grammar, physical sciences, biological sciences, social sciences or humanities.

"We receive more than 13,000 inquiries a year from all over the world," Joiner said. "We accept about 350 applications annually, with about 30 percent of our student body comprised of foreign students."



photo/Chris Swann



"Our student training schedule in the classroom and water is tough," Joiner admits. "Sound judgement and refined skills are absolutely essential in diving situations where time is always crucial and second chances are rare."

Commercial diving basically fits into one of three categories: 1) Scuba diving, which is severely restricted by depth and duration limits; 2) Surface supplied or standard diving, where a diver is tethered to the surface by hoses and cables (also time and depth limited); and 3) Bell diving, where divers ride to and from the work site in a dry bell, which also serves as a safe refuge at depth and a chamber for compressing and decompressing.

The bell/sat system (short for bell saturation system) is used widely in commercial diving because it is mandated by law for dives of 50 meters (165 feet) or deeper in many countries. The system consists of a diving bell and one or more deck decompression chambers (DDCs). The DDCs are on the deck of the support vessel and fitted with locks for transferring personnel and/or supplies into and out under pressure.

In practice, a diver and tender descend to the work site in a bell while the pressure is increased to that of the working depth. The diver enters the water and works on the project for—let's say—up to four hours, then returns to the bell.

The tender now suits up and enters the water, while the former diver serves as tender. At the end of their shift, they ascend in the bell to the surface, while the pressure is reduced

new divers admit to some drawbacks.

Jeff Bock, a graduate of the College of Oceaneering offers beginning divers some useful tips. "First you must have the right attitude, then you must be motivated. You must want to be a diver badly. You need perseverance—never give up until your superiors say it's hopeless."

Asked about sacrifices, Jeff had this to say. "When your pager goes off at 0300 hours or the lead tender needs you on deck *after* your shift has ended and it's night, with 10 footers, force-eight—say 'yes' with no gripes.

"If you've made it that far, then endure—stay in shape as it could save your life or someone else's."

Jeff adds, "The diving industry is inherently very competitive, but a smart, hard-working young man or woman can still make a decent living, if he or she is willing to pay the price."

A good diving center is well equipped. The College of Oceaneering is on a five acre campus, with more than 8000 square feet of classrooms, a double lock hyperbaric chamber, three training tanks, a fully equipped shop building and rigging yard.

On the water facilities include a welding pier; a student locker barge; an air/gas diving barge; a bell/saturation barge with triple lock hyperbaric chamber; two diving bells; welder; diesel and electric compressors; and hot water systems.

This amount of equipment is absolutely necessary. "It's not exactly a training school in the North Sea, but my experience at the College of Oceaneering mixed gas barge and the bell/sat project served as excellent training for my job," said Peter DeKuyser from Haarlem, The Netherlands. "It really pays off when you're working in the North Sea because your first mistake could be your last."

If you are willing to accept the studying and hard work, and put up with some job inconveniences, maybe commercial diving is the career for you. The cost of tuition and supplies is not inexpensive—about \$5,000. But it's a sound investment in a career that offers good financial returns to graduates willing to accept rigorous work schedules. The College of Oceaneering participates in a number of financial aid programs.

Admission requirements vary from school to school, but at the College of Oceaneering, students must have a high school or general education diploma, pass aptitude tests and a medical exam, be a certified scuba diver and be at least 18 years of age before graduation.


Chances of success increase in the commercial diving industry if you have, or can acquire, a usable skill or technical training prior to entering a commercial diving program. Construction skills such as pipe fitting, burning and welding and non-destructive testing skills (NDT), including magnetic particle and ultrasonic testing, and visual inspection, are in demand in the building and maintenance of subsea structures.

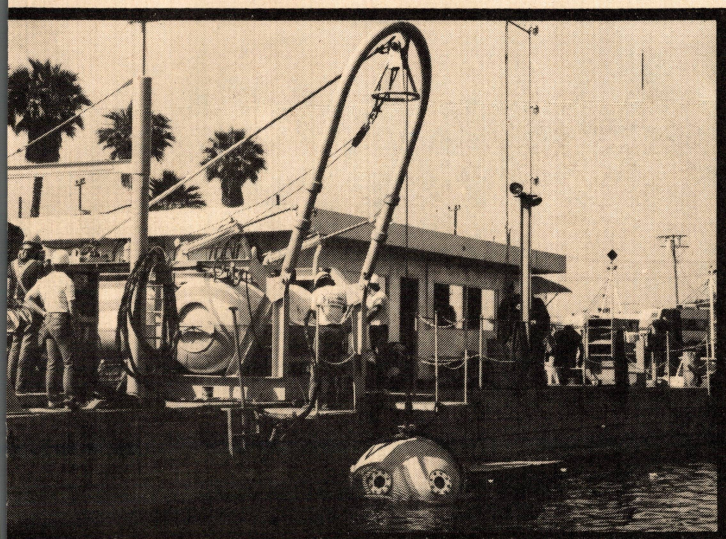
In fact, Tony Wells, working for Solus Ocean Systems, says, "NDT training almost guarantees you a job. Half of the guys I've met in Singapore are College of Oceaneering graduates."

There is also a growing demand for divers with technical training in electronics, as well as marine, electrical, mechanical, structural and civil engineers.

A quote popular in the diving industry is: "The ocean weeds out, from all the races of mankind that come upon it to make a living, a certain person. This type of person stays within the ocean, and the rest are cast ashore to deal with the land people." (Author unknown.)

If you're interested in a career as a commercial diver remember a few of these important suggestions. First, the proper selection of a diving school is critical for future employment. Don't be afraid to ask questions about the quality of the equipment, size of staff, accreditation, training in open water or tanks and bell/saturation training. Secondly, examine your career expectations. Ask the administrators about their graduates' placement in the field.

If you find this fascinating and highly rewarding career interesting, you may be packing for overseas next year. 



Photo/George Cozens

**Disconnected from the DDC, the bell is lowered into the water.**

to the intermediate or storage pressure of the DDC. This pressure allows safe compression and decompression to and from the working depth without bending the divers.

On deck, the bell is mated to the TUP (Transfer Under Pressure) chamber. The tired team transfers into the DDC under pressure and a new team enters the bell.

Inside the DDCs, the divers shower, eat and relax or sleep until the next shift. In this type of situation divers may be under pressure for up to several weeks.

Bell/sat diving is proving to be the safest type of diving for extended periods of time in the water. It's cost-efficient to the contract companies, allowing divers to work at great depths around the clock and offering the only effective way for divers to work in depths approaching 2000 feet. The bell/sat method of diving will continue to provide more job opportunities and higher pay in the coming years. The average salary is \$550 a day for at least a 24-26 day cycle.

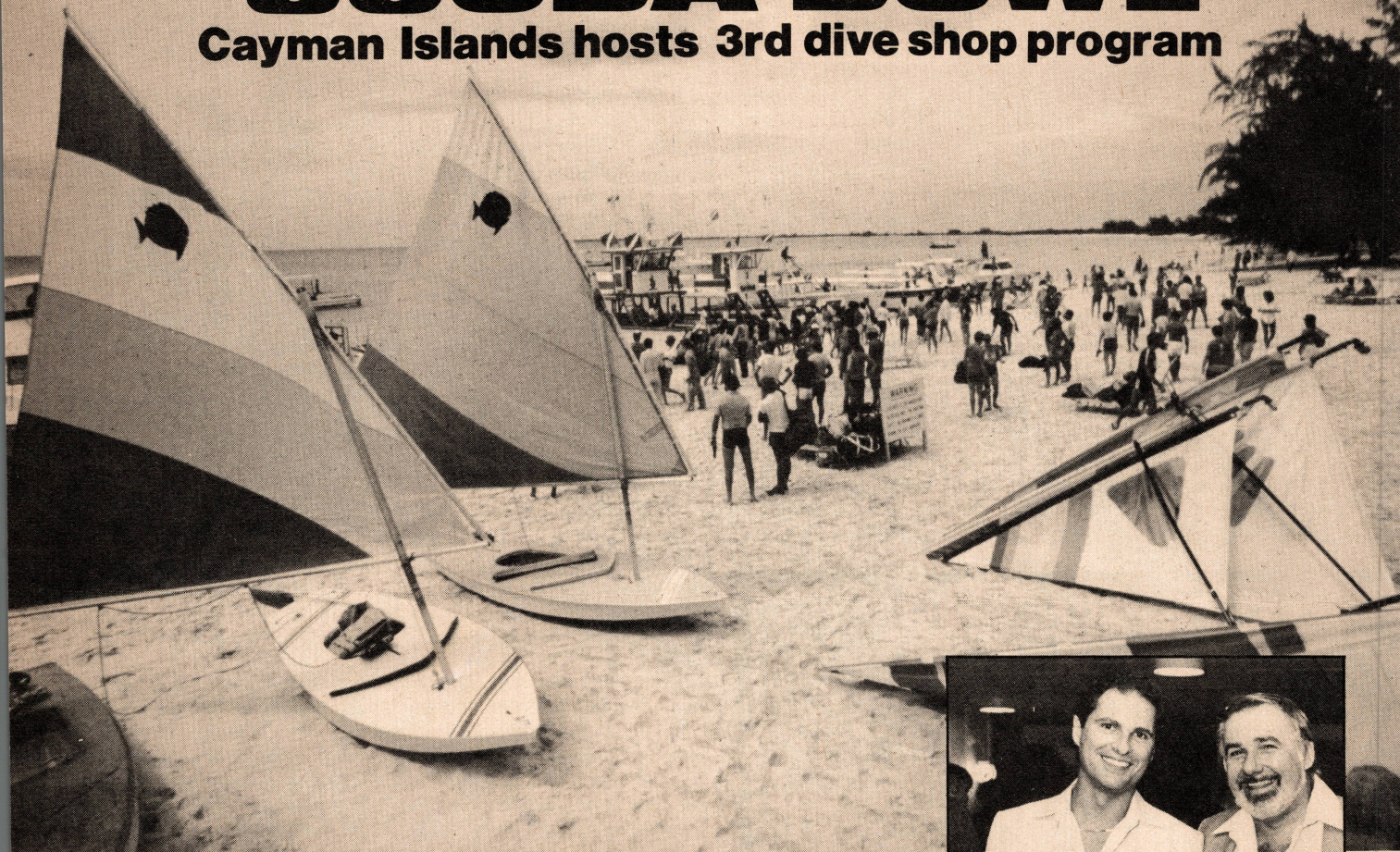
At the College of Oceaneering, students are offered four basic courses: Air Diver, Air/Mixed Gas Bell/Saturation, Diver Medic Training and Inspection and Non-Destructive Testing.

While the lure of exciting travel and big salaries draws a large number of interested recruits to the diving profession,



# SCUBA BOWL

## Cayman Islands hosts 3rd dive shop program



BY PETER M. CASLEY

**T**he Cayman Islands pulled out all the stops for 62 visiting dive shop owners and managers for Scuba Bowl III. This dive festival is organized by the Cayman Islands Government and the private sector, including dive operators, hoteliers and related companies.

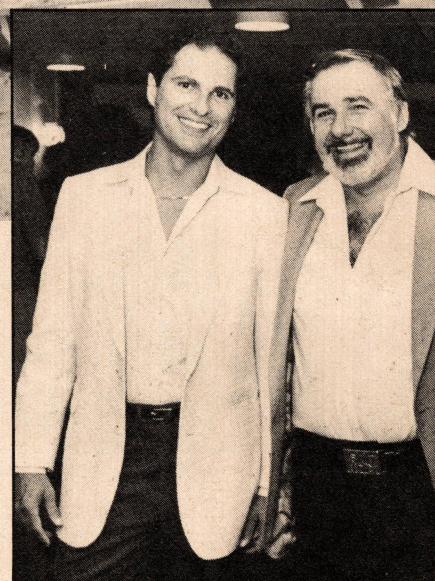
The program for Scuba Bowl III, as in previous years, fell into three areas: The first was education. Al Hornsby, vice-president of PADI, and Paul Tzimoulis, editor/publisher of SKIN DIVER Magazine gave lectures and seminars. These covered such subjects as marketing a dive destination and the use of undersea photography in the promotion of a dive destination. Market trends were discussed in depth as was the use and maintenance of U/W photo equipment.

Paul Tzimoulis and Al Hornsby have been friends of the Cayman Islands for many years and have been guest lecturers ever since the inception of Scuba Bowl in 1980. This year they received the highest accolade for their involvement with the islands' tourism, the Sir Turtle Award, presented by Eric Bergstrom, di-

rector of tourism for the Cayman Islands. This prestigious award is granted to those who have gone far beyond the normal call of duty to help the Cayman Islands maintain and improve tourism.

Some interesting and encouraging statistics were presented by Al Hornsby during his lecture on market trends: 49 percent of all divers in the United States make at least one dive trip each year. Twenty-five percent actually travel with their dive shop owner or representative. A further 10-15 percent of America's divers are influenced by their dive shop when choosing a dive destination. Dive shop owners are becoming increasingly more active in travel and normally work out their own packages with individual dive resorts handling all arrangements, with the exception of flights, ticketing being organized by a local travel agent.

Scuba Bowl places the emphasis on diving in the Cayman Islands and represents a perfect opportunity for dive shop owners and managers to see, firsthand, why some 50,000 divers a year visit these islands. There are a number of rea-



**Paul Tzimoulis, editor-publisher of SKIN DIVER (right) and Al Hornsby PADI vice-president, education and public affairs.**

sons for the islands' popularity as a holiday destination and premier dive resort.

For divers, whether experienced or novice, the Cayman Islands are hard to beat. The calm, clear, warm waters, where temperatures rarely vary by more than five degrees and visibility underwater can be an incredible 200 feet, are exceptionally safe for the beginner or inexperienced diver. In addition, some of the most beautiful dive sites lie in 40-50 feet of water. There are magnificent reefs,



wrecks and the renowned wall, which, depending upon where you dive, may start in as little as 40 feet of water and drop away to 6000 feet.

The dive operators in Cayman are extremely professional, well equipped with the most up-to-date dive gear and above all, safety conscious. The dive industry enjoys a safe record, envied by other dive destinations, and local operators have worked hard to earn this distinction. All dive boats must have a radio and a supply of oxygen aboard; each dive-master may take only ten experienced divers down at one time.

For divers on a tight budget, the expense of a boat trip is not necessary to enjoy the undersea beauty of Cayman. There are plenty of excellent shore dives which include several wrecks as well as spectacular reefs. It is even possible,

from certain points on the island, to dive the wall from shore.

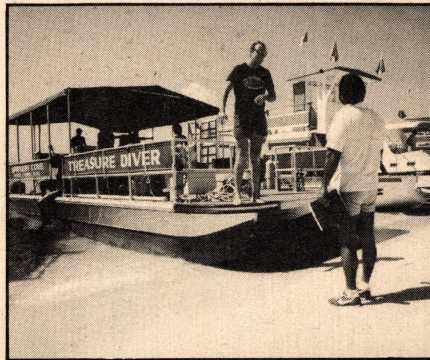
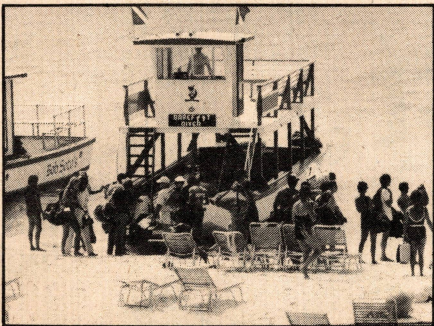
Each afternoon during Scuba Bowl III, participants went diving with a different dive operation. This gave them the opportunity to meet a number of dive operators and some of the staff personally and to experience a good cross section of the most popular sites. Scuba Bowl participants are held to 75 people. With most of the islands' dive operators involved, this means the average number of divers per boat was seven. The most popular deep dive seemed to be Trinity Cave, and Devil's Grotto was a well remembered shallow dive. During the week, six dives were

scheduled, including one night dive.

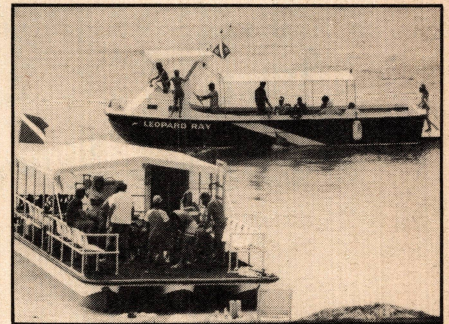
Some of the participants were in Cayman for their third Scuba Bowl, some their first. Many of them had already brought dive groups to the island and those that had not, without exception, said that they would be bringing groups to Cayman during 1984.

Scuba Bowl III gave those attending an intimate look at the dive industry, the operators, their equipment, their staff and the many memorable dive sites. It also gave those attending the opportunity to look closely at Cayman, its beauty and the honesty and friendliness of its people. In return, those responsible for Scuba Bowl know that as a result of this unique event, many more divers from all over America will be visiting and enjoying one of the best dive destinations in the world—the Cayman Islands. >>>

photos/Geri Murphy



Each afternoon Scuba Bowl III participants went diving with a different dive operation—the boats docking on the beach.





**T**ake your pick! There are four Arbalete Canons from which to choose: the 63 inch Super with a center barrel grip; 60 inch Maxi; 57 inch Compact; and 41 inch Mini. All are three rubber band spearguns except the two banded Mini. They are brought to American spearfishermen from Cavalero Champion of France by Inflatable Systems/Seatec. A close examination of the all-black Canon Compact reveals many of the design features which are incorporated into this family of medi-

the gun with equal ease. Triggering is smooth enough to permit squeezing off a long shot. The safety is unmarked and behind the trigger for actuation by the thumb and index finger. Its operation is somewhat unconventional in that you push it to the left for on and right for off.

An outstanding feature of the Canon Compact is the ease of loading—if stretching three bands can be called easy. The butt stock is long compared to many guns and gives the spearfisherman an additional mechanical advantage. The rubber butt cap is extra large to distribute the loading pressure over a wider area of the diver's leg or stomach.

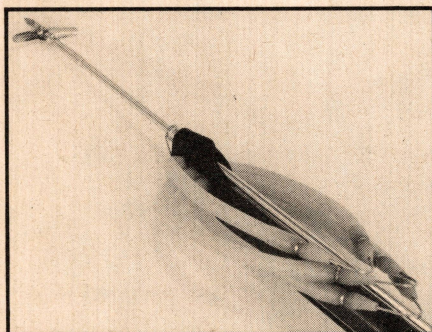
Inflatable Systems provides one of the most diverse and complete selections of accessories for its Cavalero spearguns.

# Canon Compact

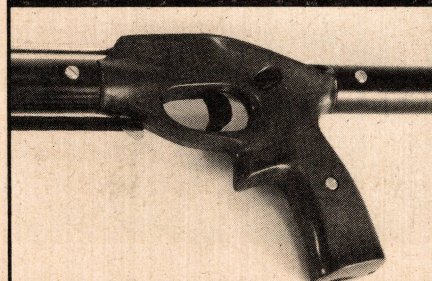
Arbalete designed for distance and penetration

Cavalero's all black

Text and Photography by Fred Fischer



The Compact 57 is powered by three one-half by 20 inch amber rubber slings. It has a chisel spearpoint with two flukes. Below: The safety is unmarked and located behind the trigger.



um to heavy duty spearguns.

The three one-half by 20 inch amber rubber slings included with the Compact immediately indicate that it is designed for distance and penetration. They propel a 5/16 inch plated steel shaft which is threaded for six mm tips. A chisel spearpoint with two flukes for firmer flesh fish is included. The threads are reinforced against breakage by a short collar on the back of the spearpoint which surrounds the shaft. Range of the 45 inch shaft is limited by the 10.5 foot black nylon shock cord which requires two wraps when loading the gun. Unfortunately, a rubber stretch section is not included in the line, but is available as an accessory.

The barrel of the Canon Compact is constructed from one and one-quarter inch aluminum tubing and O-ring sealed at each end for buoyancy. Attached to one end is the plastic muzzle with a closed shaft guide. It is designed for three slings. At the other end of the barrel is a comfortable and well built aluminum grip. The line release is positioned so that the shock cord dresses close to the barrel to minimize snagging on rocks and seaweed. Right or left handers can fire

Included are round tip, chisel tip, slip tip, three tip, four tip, single barb and double barb spearpoints. Line storage comes in the form of a reel and the unique Line Gobbler. For two hand aiming there is a center grip which is actually included with the Canon Super speargun. A heavy gauge nylon speargun carrying case with a rust proof zipper is ideal for travel. There is an inflatable nylon line float complete with CO<sub>2</sub> and oral inflation devices.

The Canon Compact carries a one year warranty against manufacturing defects. Good maintenance simply requires that the gun be well rinsed in fresh water before storage and the rubber bands protected from ozone with silicone spray and storage in a sealed plastic bag.

In conclusion, the Canon Compact is a well built speargun designed for taking larger size game fish. It is backed by Cavalero Champion's many years of design and manufacturing experience. The suggested retail price is \$93.25. Take a look at all four Arbalete Canons at your Inflatable Systems/Seatec dealer.

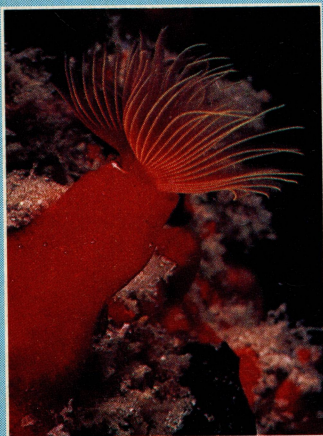


# UNITED STATES VIRGIN ISLANDS

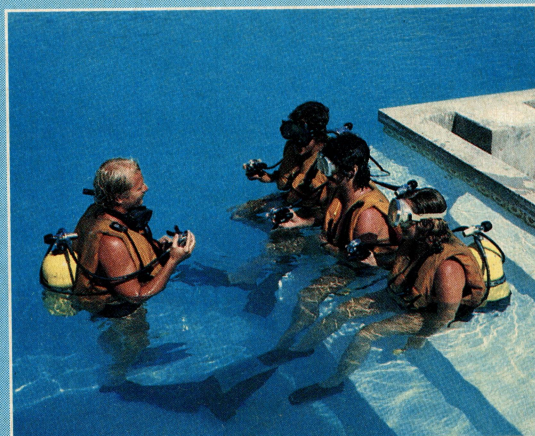
SDM SPECIAL SUPPLEMENT







A USVI colorful macro subject.



A certification class in the Villa Olga pool.

Cathy photographs sponges, soldierfish.





# UNITED STATES VIRGIN ISLANDS

## An All Star Vacation Paradise for the Whole Family

TEXT AND PHOTOGRAPHY  
BY JIM AND CATHY CHURCH

**T**here are dozens of reasons for visiting the U.S. Virgin Islands: The weather is warm and mild; the beaches rank among the Caribbean's finest; accommodations range from exclusive resorts to beach campsites; golf, tennis, fishing, sailing and many other activities are available; and for the diver, there is undersea beauty and excitement. You name it—shallow reefs abundant with marine life, historic shipwrecks or walls that plummet for thousands of feet—and you'll find it in the U.S.V.I.

St. Thomas, St. John and St. Croix are the three main islands of the 50 or so islands and cays that form the U.S.V.I. They snuggle together in the Caribbean Sea about 1500 miles southwest of New York, 1000 miles southeast of Miami and 70 miles east of San Juan, Puerto Rico. St. Thomas is 13 miles long, four miles wide and covers 28 square miles. St. John is about four miles east of St. Thomas and covers 20 square miles. St. Croix is 40 miles south of St. Thomas and St. John. The largest of the three islands, St. Croix, is 23 miles long, six miles wide, and covers 80 square miles. Air and water travel between the islands is quick, easy and relatively inexpensive. Each island has its own unique personality and offers a different dive vacation.

Getting to the U.S.V.I. is easy. Eastern Airlines flies from Miami to St. Thomas and continues onto St. Croix. American Airlines flies from New York to St. Thomas and also continues onto St. Croix. Eastern, Delta, Pan American and other airlines have daily flights to San Juan, Puerto Rico; from there, you have a 25 minute commuter flight to St. Thomas or a 45 minute flight to St. Croix. Although air fares may be higher, we'd rather fly directly from Miami or New York. To get to St. John, you fly to St. Thomas and then take a water ferry or the Goose (the Virgin Islands Seaplane Shuttle) to St. John. The 15 passenger, twin-engine Grumman Mallard Seaplanes serve St. Croix, St. Thomas, St. John and Tortola in the British Virgin Islands.



Guests relax at Bolongo Bay's restaurant/bar/pool.





Photograph by Jim and Cathy Church



# **“Wrecks, caves, pinnacles, walls, colorful reefs, fish, and even seahorses— the U.S. Virgin Islands have it all.”**

*Jim and Cathy Church*

“The Virgin Islands have a fantastic variety of excellent dive sites. And after the diving, the scenic views and beaches are magnificent, the historical sights are fascinating, the shopping opportunities are delightful.

“At night, the variety of restaurants and clubs will satisfy every taste and mood. And if you still have the energy to party, there’s live entertainment and dancing from steel bands and limbo to electric guitars and disco.”

**St. Croix**

**St. John**

**St. Thomas**

**United States Virgin Islands**

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circle #204 on Reader Service Card



There are several automobile rental companies in the islands. In St. Thomas, Avis, Hertz and National have booths at Harry S Truman Airport. And, in St. Croix, Avis, Budget, Hertz and National have booths at Alexander Hamilton Airport. Many hotels have rental car branches and there are many independent car rental companies located in the towns and near the airports.

The main vacation season runs from about mid-December to mid-April. Prices for lodging and many activities are lower during the off season, and diving conditions may be better, but more businesses are closed and some services curtailed.

Your choice of hotel should reflect the purposes of your visit. If you are a hard-core diver, chose a hotel where there is only a short walk from your room to the dive boat. If you are interested in other watersports, choose a hotel with a beach and rentals for boardsailers, snorkeling gear, etc. If diving is a minor part of your visit, a hotel that will shuttle you to a dive operation (or if the dive operation will pick you up) might be your best choice.

If you are interested in a particular dive operation, write and ask for hotel/resort recommendations. Ask specifically about what diving services are offered and about distances and transportation from your room to the diving. If you arrive on a cruise ship, your cruise director may already have dive packages arranged with dive operators, but it never hurts to investigate in advance.

All of the 20 dive operators we surveyed offer both resort and certification courses and dives for both beginning and advanced divers. They provide tanks, standard backpacks and weights. Other dive gear is usually available as a rental. Some operators will pick you up and return you to your hotel. However, because specifics change with time and season, we recommend writing direct for the latest information. Identify yourself as an aspiring, novice or experienced diver when inquiring, and be sure to get confirmation if you want a certification course.

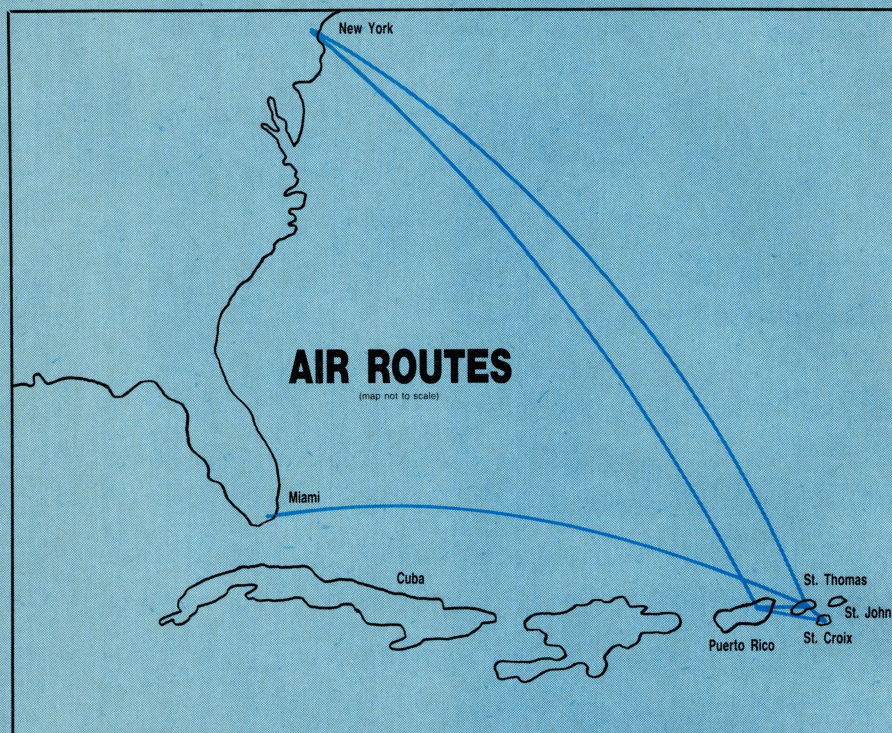
When packing, remember that temperatures average about 82°F in summer and 77°F in winter and the humidity can be high. Temperatures are usually in the 70s at night—the record low is 61°F. Shorts and light clothing are popular; jackets may be required at some posh restaurants, but rarely ties. Beachwear and light clothing, as well as non-prescription drugs and various sundries are readily available on the islands, so you can pack light if you want extra space to bring home island purchases.

Because the U.S.V.I.s are U.S. possessions (purchased from Denmark in 1917), you don't need a passport when traveling to or from any of the islands. But if you plan a side trip to the British V.I.s, a valid passport is required even if you are at sea and never leave the boat!

The duty-free shopping is exquisite! Travelers to the U.S. mainland can take back \$800 in purchases duty free—twice the normal limit. Because there are no age limitations, a family of three could take back \$2,400 of duty-free merchandise. If you buy bulky items, you don't have to carry your purchases home with you. Ask for customs form 225 at any store. The customs official stamps this form, which details your purchases. Then, you return the form to the merchant who will ship your purchases to you at a

later date. If you're over 21, you can include five fifths of liquor as part of your duty-free-allowance. You can also mail up to \$100 in duty-free gifts each day.

Dollars are the accepted currency. Traveler's checks and major credit cards are generally acceptable, but occasionally you will find hotels, shops or restaurants that won't accept credit cards. U.S.V.I. banks require 21 working days before clearing checks from U.S. banks, so don't count on your checkbook for ready cash.



You can fly to the USVI direct or with a stopover in Puerto Rico.

#### AIRLINES SERVING THE USVI

##### AREO VIRGIN ISLANDS

San Juan/St. Thomas;  
San Juan/St. Croix  
(809) 774-5000

##### AIR FLORIDA

St. Thomas/St. Croix  
(800) 292-2121

##### AMERICAN AIRLINES

U.S./San Juan/St. Thomas/St. Croix  
(809) 774-7111

##### CORAL AIR

San Juan/St. Thomas/St. Croix  
(809) 778-3320

##### CROWN AIR

San Juan/St. Thomas/St. Croix  
(809) 774-4020

##### DELTA AIRLINES

U.S./San Juan  
(809) 776-1011

##### EASTERN AIRLINES

U.S./San Juan  
St. Thomas/St. Croix  
(809) 774-3131

##### OCEANAIR

San Juan/St. Thomas  
San Juan/St. Croix  
(809) 774-5039

##### PRINAIR

San Juan/St. Thomas  
San Juan/St. Croix  
(809) 774-3636

##### SUNAIR

St. Croix/St. Thomas  
(809) 778-2390

##### VI SEAPLANE SHUTTLE

St. Thomas/St. John/St. Croix  
(809) 774-1776



# ST. THOMAS

## THE SHOPPER'S PARADISE

Upon arrival at Harry S Truman airport, you are welcomed with a complimentary rum punch. The baggage claim area is only about 50 feet from the waiting taxis. Fares are reasonable, and most hotels are within a 25 minute ride from the airport. The normal airport amenities—bar, restaurant, gift shops and rental cars—are present. Both an information and hotel reservation booth are nearby if you need assistance. Be sure to pick up a complimentary copy of *St. Thomas This Week*, an informative guide to St. Thomas and St. John.

In Charlotte Amalie, the capital town, shoppers can choose imports from around the world, in over 100 shops: Camera equipment, clothing, European crystal and china, gem stones, gold, stereo equipment, jewelry, liquors, French perfumes and Swiss watches are only part of what is available. Prices are generally lower than in the U.S. because the Virgin Islands have free port status. Also, a recent law removed the customs duties and excise taxes from 23 categories of merchandise frequently sold to tourists.

St. Thomas has some of the world's finest public beaches. Magans Bay, for example, has been called, "...one of the 10 most beautiful beaches in the world," by *National Geographic Magazine*. Several hotels have shuttles to the beaches and other tours are available. Non-divers can enjoy the underwater scene by visiting Coral World at Coki Beach. Coral world features an underwater observation tower. You can stand level with the ocean floor and observe fish, corals and other marine life through large windows. And, at the upper levels, sea creatures are displayed in large, elaborate aquariums. Coral World also has a release program for seahorses, turtles and other creatures bred in the aquariums.

## DIVE SITES

But, let's move onto the important stuff for divers, the dive sites:

**Andre's Reef** is a large dive site on the northwest tip of Little Buck Island, about two and a half miles from St. Thomas Harbor. From about 40 to 80 feet it drops off to a sandy bottom where you will find conch, large rays and scattered wreckage that hosts eels, octopus and many fish. Andre's Reef can be enjoyed by both beginning and advanced divers; and a group of 20 can easily spread out over the site.

**Capella Island**, next to Little Buck Island, has a sloping reef of lettuce corals from about 40 to 70 feet. You will find lobster, eels, pufferfish and an anchor.

The **Cartanser Senior** is a 190 foot,



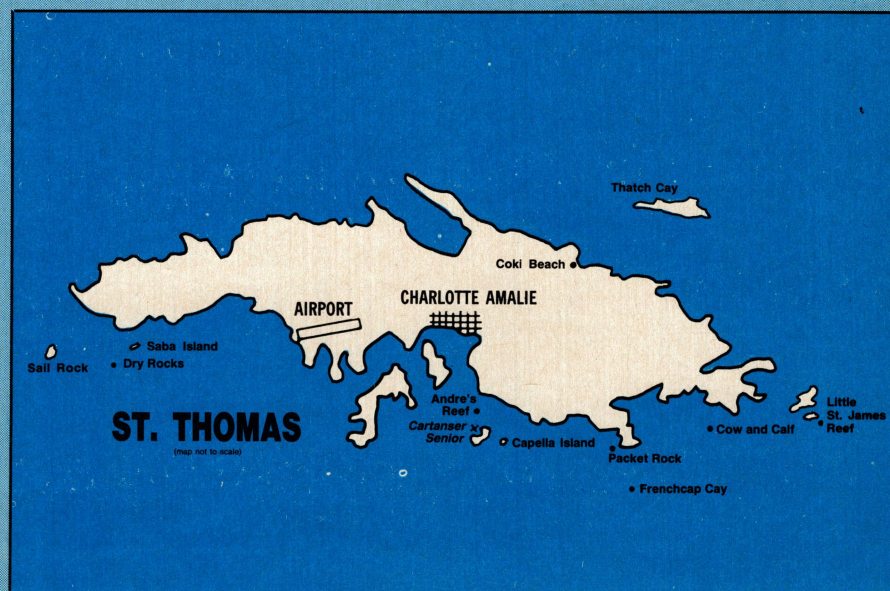
**Above: The Villa Olga resort on St. Thomas. A hardcore diver's resort, it is headquarters for the Saint Thomas Diving Club. Right: The Mohawk II is a 68 foot dive boat owned by the Saint Thomas Diving Club. It carries 16 divers in comfort.**



steel-hulled wreck that was deliberately sunk in the shallow, protected cove of Little Buck Island to provide a dive site. Sitting upright in about 35 feet of water, the passageways, galley, holds and engine room provide endless wide-angle setups for aspiring wreck photographers. And, in addition, the sea life living in and on the

reef areas around the wreck provide excellent close-up subjects.

**Coki Beach** slopes gradually to the top of a reef, about 100 feet from shore and 25 feet deep. The reef, which is covered with sea life, slopes down at 45 degrees to a sandy bottom at about 50 feet. Because divers have fed the fish in this





protected park area, the fish may follow you throughout the dive. Coki Beach is a popular beach for beginners and night shore dives because it is in a protected cove, at the northeast end of St. Thomas, with little currents or surge.

**Cow and Calf**, at the southeast end of St. Thomas, features stone tunnels, caves and rock formations in about 25 to 35 feet of water. The largest cave is lined with yellow and red sponges, banded coral shrimp, arrowcrabs and other creatures, and occasionally contains a sleeping nurse shark. Another cave is filled with a cloud of copper sweepers and in another, we found a sleeping turtle. Outside the caves, you will find corals and reef fish. In rough weather you can swim through rock crevices and look up at the boiling surf above. The white water at the tops of the rocks reminds us of clouds masking a mountain top.

**Dry Rocks** has a series of rock formations from about 10 to 40 feet. On the western side, cuts in the rock are ideal for your vertical diver portraits framed with rocky walls covered with red and yellow sponges and seafans. Majestic elkhorn and stately pillar corals are commonplace on the eastern side. And, on the southwest side, schools of spadefish frequently glide by.

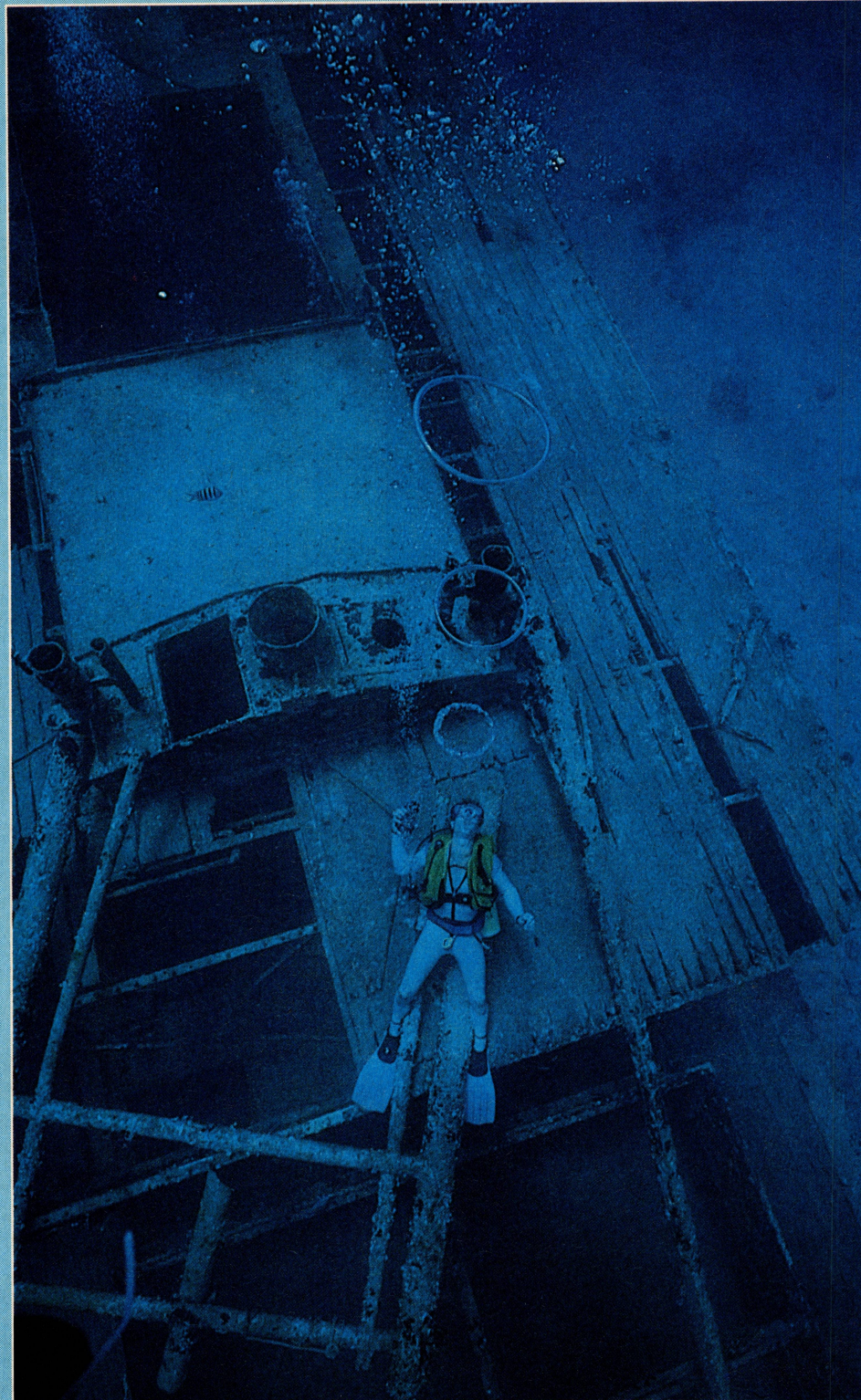
**Frenchcap Cay** is a mid-ocean pinnacle about six miles south of St. Thomas. In depths of about 50 to 90 feet, you will see large basket sponges and sometimes large rays, barracuda, horse-eye jacks and other large pelagics. In the shallow areas, elkhorn corals weave intricate patterns and caves and tunnels are lined with corals and sponges.

**Sail Rock**, which juts up from the ocean four miles south of the western tip of St. Thomas, has vertical sides that plunge to 90 feet. Upper portions have magnificent elkhorn corals and lower portions have delicate deepsea fans. You may see schools of queen angels (we saw a group of eight), barracuda and other fish that are attracted to this undersea oasis. There may be a current, however, so this site is for experienced divers.

**Packet Rock** is where the packet ship **Warrick** foundered in 1816 with a cargo of china and tiles. Pieces of china, tiles and occasional cannonballs litter the bottom near the submerged rock ledge.

**Little St. James Reef** is just off the southeast side of Little St. James Island. In depths ranging from 10 to 40 feet, you will find pillar corals, elkhorn corals and an undercut ledge along the shoreline that is honeycombed with small caves. Although Little St. James can get surgy, the reef is a good site for beginners and close-up photographers.

**Thatch Cay** offers three or four good sites, but the stone tunnel at the western tip is the most popular. As with many other Virgin Island tunnels, its walls are covered with yellow cup corals, varicolored



The **Cartanser Sr.**, off Little Buck Island.

sponges and small shrimps and crabs.

The steel-hulled **General Rodgers** was sunk in 60 feet of water to provide a dive site. Between Thatch Cay and Pineapple Beach, her hull is now home for an exotic variety of marine life.

**Saba Island**, a 30 minute boat ride from Villa Olga, has three different dive sites. It features shallow reefs, ledges and lobster and small subjects for close-

up photographs.

## DIVE OPERATIONS AND RESORTS

Aqua Action, Inc., owned and managed by Palmer and Mary Williams, is on the Secret Harbor Beach at Secret Harbor Hotel. Lectures for scuba instruction are held on the shaded beach porch, about 15 feet from the full service dive



# St. Thomas Diving Club

...invites you to

**bolongo bay**  
BEACH AND TENNIS CLUB

ST. THOMAS, U.S. VIRGIN ISLANDS

Look for family fun and sun drenched days at Bolongo Bay, a quiet tropical seaside haven. Each room is equipped with efficiencies and an outdoor barbeque area. Activities included in your room rate are an introductory scuba lesson, sunfish sailing, tennis and a days sail aboard the Ho-Tei. For the certified diver, Bolongo Bay offers a full diving schedule and convenient connections to dive centers.

## UNLIMITED DIVE PASS...

The St. Thomas Diving Club's Unlimited Dive Pass is included in all dive packages. If you are a certified diver with your own equipment you can use your dive pass on all 4 of our dive boats including the 68 foot Super Boat Mohawk II and the 51 foot Caribe Diver located at Villa Olga and Bolongo Bay's own Diver II. So come to the St. Thomas Diving Club and dive the Atlantic and Caribbean waters, the U.S. and British Virgin Islands.



You'll enjoy diving on Bolongo Bay's own Diver II (above) as well as the 68 foot Super Boat Mohawk II and 51 foot Caribe Diver.

## 8 Days/7 Nights

Unlimited Diving .....\$632.50

Non-diver .....\$332.50

Per person. Double occupancy.

Learn To Dive - 8 Days/7 Nights .....\$582.50

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April 28 - December 19, 1984

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Winter Space Still Available At Slightly Higher Prices.



shop. Then, students pick up their tanks at the water's edge, about 40 paces away. The shallow reef, which is also an excellent night dive, begins about 100 feet from shore. For personalized boat dives, Aqua Action has the 38 foot *Jolly Roger*, and for sailing, the 26 foot *Gusto*.

Aquanautics Water Sports is at American Yacht Harbor, Red Hook. Owner/manager Jerry Henderson uses a comfortable 40 foot Striker for groups of up to six divers and a 20 foot SeaCraft for smaller groups. He has a hotel package with the V.I. Hotel Beach Club—divers are

shuttled from the hotel in a shaded safari bus. While instruction is available, Jerry is geared for experienced divers.

Caribbean Divers: Also at Red Hook, Dave Fredebaugh uses a 21 foot Bertram for up to six divers. Specializing in personal service, most of Dave's customers have been with him before. At present, he doesn't have a hotel package. Because of his location, Dave can dive northern or southern sites, including both St. Thomas and St. John, depending on the wind and water conditions.

Chris Sawyer Diving Center has a 65

foot schooner for up to 12 divers and a 46 foot powerboat for up to 10 divers. He dives the airplane wreck at Fortuna Bay, a shallow shore dive about 125 yards out. He also dives Lovango, a 50 to 55 foot reef in characteristically calm water and runs night dives from Coki Beach. Call Chris from any lodging on the island and he will pick you up and take you back after the dive. Chris guarantees that if you aren't satisfied with the service you receive in his shop and on his dives, you will get your money back.

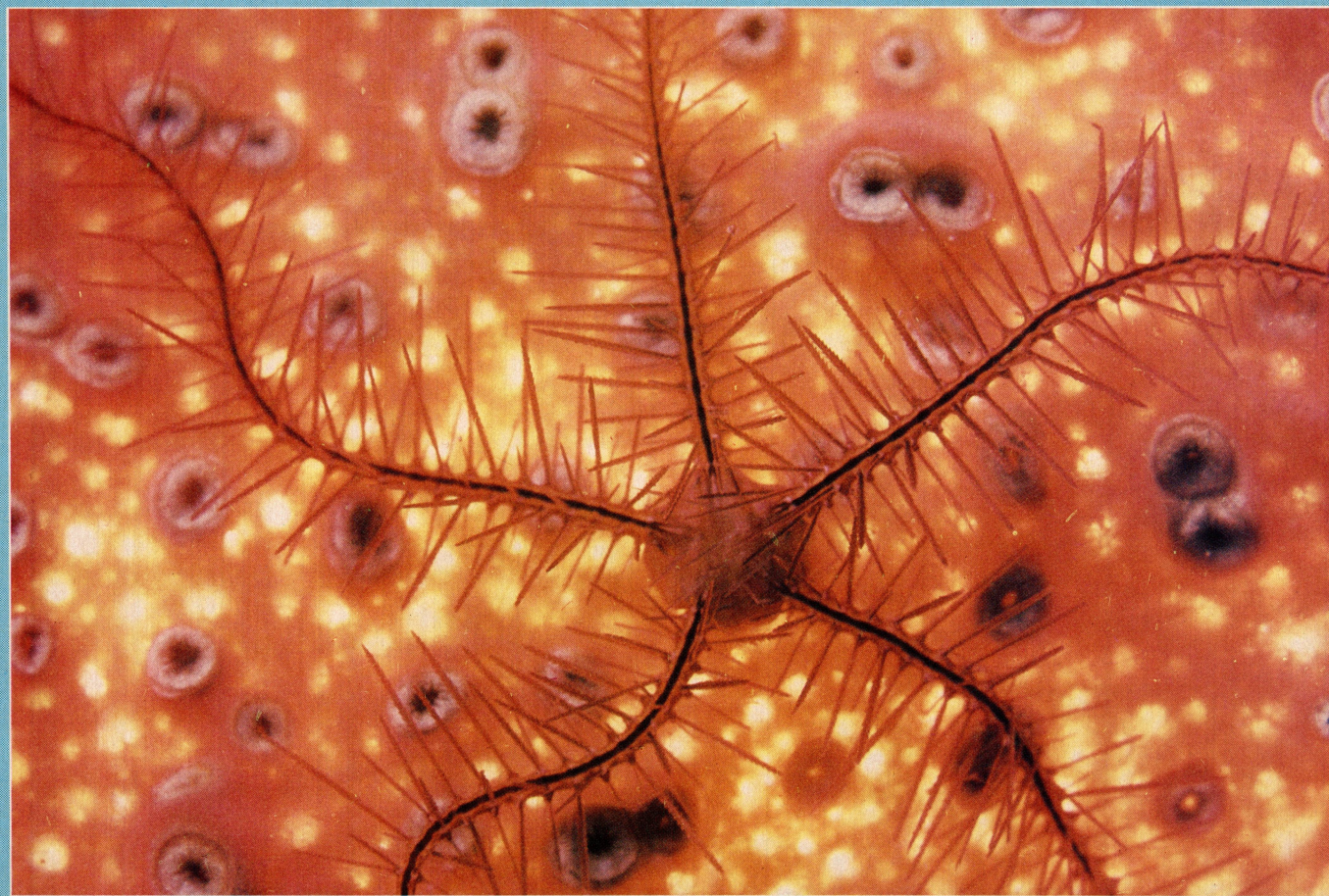
Joe Vogel Diving Company: Joe Vogel,



Eastern flies from Miami to the Virgins.



The Seaplane Shuttle serves all of the V.I.



A study in colors and textures: A brittle star on a sponge.



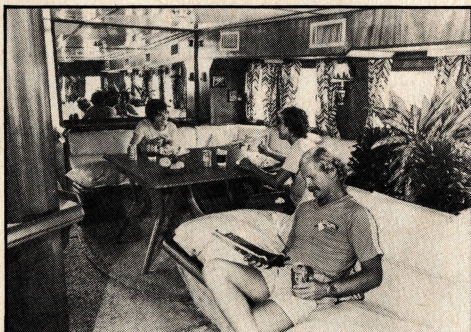
# THE ST. THOMAS DIVING CLUB NOW OFFERS "DIRECT TO YOU" LOW PRICES\* AND A NEW REBATE PROGRAM\*

Live aboard the luxury 68' MOHAWK II and receive a special \$100 **REBATE** on any airline ticket on an 8 day dive package (\$45 **REBATE** on a 4 day trip).

**8 days/7 nights**  
**\$750 (less \$100)**

**4 days/3 nights**  
**\$320 (less \$45)**

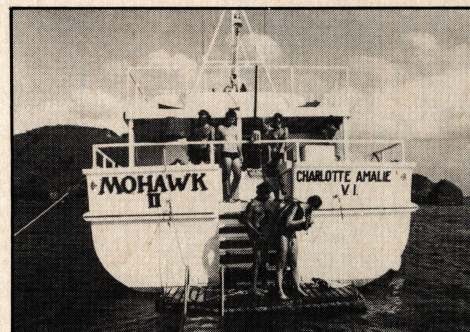
The price is based on 16 passengers, and our Travel Department will help you find 15 friends if you are not part of a group. All prices include all meals, wine with dinner, private a/c stateroom, diving, windsurfing, sunfish sailing, snorkeling. Not included: BVI taxes and gratuities.



Interior of Mohawk II

*"One of the newest and most handsomely appointed live aboard dive boats in the world."*

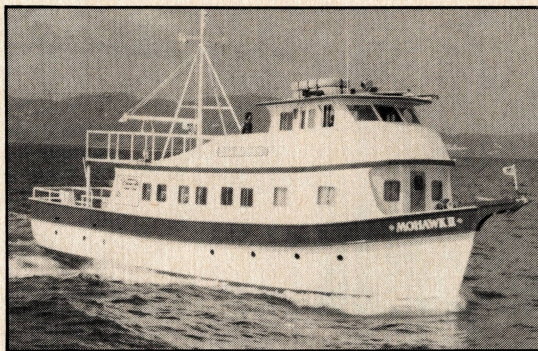
SKIN DIVER, Jan. 1983



Mohawk II dive platform

*"Overall, this was a super trip. Though I'm paid for my critical eye, I cannot report in other than glowing terms about any of the aspects I experienced. The Villa Olga was pleasant. The Mohawk II was a delight. The diving was terrific, especially for a photographer."*

UNDERCURRENT, Jan. 1983



Mohawk II underway

*"The biggest advantage of an overnight trip aboard Mohawk II apart from the pure joy of being at sea is the elimination of travel time between the dive site and a resort, and the need to lug dive gear back and forth. The diving and ship board activities blend together for a totally relaxing vacation."*

Jim & Cathy Church,  
SKIN DIVER March, 1983

For landlubbers, stay at the Villa Olga dive resort and receive a special \$175 **REBATE** on an 8 day dive package which includes double room, breakfast, diving and tours.

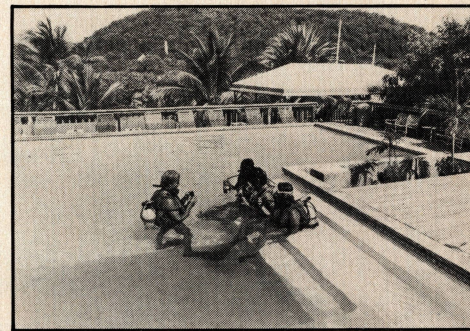


Villa Olga Bar

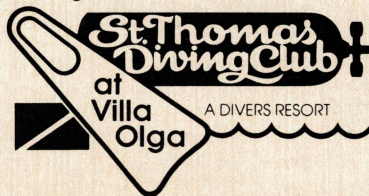
**8 days/7 nights**  
**\$608 (less \$75)**

**Non-diver package:**  
**8 days/7 nights**  
**\$353**

\* Low prices and rebate program expire on April 20, 1984.



Villa Olga Training Pool



P.O. Box 4976  
St. Thomas,  
U.S.V.I. 00801  
(809) 774-1376

For Mohawk II/Villa Olga reservations,  
call toll free: **800-524-4746**

For airline information and reservations,  
call toll free: **800-524-8312**  
Ask for DIVE TRAVEL





The USVI is a macro photographer's paradise: Colorful miniature creatures are everywhere. Favorite subjects include myriad sponges, anemones, corals and arrowcrabs. Dive boats carry divers to offshore sites.



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Miami, FL 33126  
7270 NW 12th Street  
(305) 591-2070

New York, NY 10020  
1270 Avenue of the Americas  
(212) 582-4520

Washington, DC 20036  
1050 - 17th Street NW  
(202) 833-9194

who has been teaching scuba at St. Thomas since 1960, has probably the most personalized dive operation in the U.S.V.I. Debby Powers-Vogel handles bookings and business affairs while Joe dives, teaches and works personally with his students and divers. In Joe's words, "If someone wants me to hold their hand and take them down, I'll gladly do it." Specializing in day or night shore dives for one or more divers, Joe will pick up and deliver on request.

St. Thomas Diving Club (STDC), owned by Dick Doumeng, is based at Villa Olga and has branch operations at Bolongo Bay Beach and Tennis Club and Pineapple Beach Resort. STDC has five boats: two 25 footers (*Diver I and II*), the 48 foot *Goldielocks*, the 51 foot custom, *Carib Diver* and the 68 foot live-aboard *Mohawk II*. The boats depart from either Villa Olga, Bolongo Bay or Pineapple Beach Resort. STDC also has dive packages with Carib Beach Hotel, Island Beachcomber, Bluebeard's, Limetree Beach Hotel, Watergate Villas, The Anchorage Condominiums, Cowpet, Point Pleasant Condo Hotel, Magens Point Hotel and Mahogany Run. Dive sites include Andre's Reef, Capella Island, *Cartanser Sr.*, Cow and Calf, Dry Rocks, Frenchcap, Sail Rock and Saba Island.

A Five Star PADI Training Facility, STDC offers a free introductory scuba lesson as well as certification courses. Class lectures are held in Villa Olga's shaded outdoor classroom surrounded by palm trees and gardening. The diving is from STDC boats.



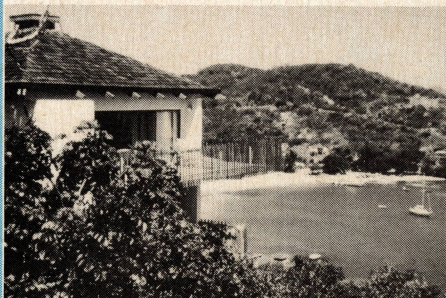
...invites you to an  
8 day/7 night vacation at  
two of St. Thomas' finest  
beachfront resorts, one an outstanding hotel,  
the other a luxury condominium



**POINT  
PLEASANT**

ST. THOMAS, U.S. VIRGIN ISLANDS

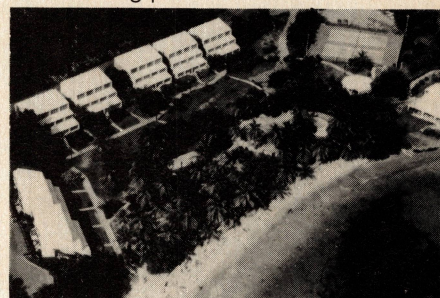
An unforgettable experience for the diver and non-diver alike at St. Thomas' premiere condominium resort. Luxurious, fully-equipped accommodations with incomparable down-island views to St. John, Tortola and many uninhabited Cays. Cool refreshing tradewinds caress the villas nestled on a shorefront hillside. It's a little more tranquil. A lot more genteel.



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**8 DAYS/7 NIGHTS**

Effective December 20, 1983

DIVER

NON-DIVER

**\$860 \$560**

Per person, double occupancy. Plus airfare, 5% hotel tax and 5% energy surcharge, applicable to room portion only. Group accommodations available at lower per person rate.

**UNLIMITED DIVE PACKAGE INCLUDES**

- Unlimited dive pass
- Free use of cars
- Free use of sunfish sailboats
- Free use of snorkeling equipment
- Free tennis day and night
- Managers cocktail party
- 3 freshwater pools
- Private beach

FOR INFORMATION AND RESERVATION CONTACT  
Point Pleasant Reservation Office  
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**8 DAYS/7 NIGHTS**

Effective December 19 1983

DIVER

NON-DIVER

**\$755 \$455**

per person double occupancy  
Not included: Room Tax of 5%.

**UNLIMITED DIVE PACKAGE INCLUDES**

- Air-conditioned beachfront accommodations.
- Unlimited Dive Pass.
- Welcome Rum Cocktail.
- Manager's Cocktail Party (Monday).
- Use of tennis courts.
- Weekly tennis clinic.
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**UNLIMITED  
DIVE PASS**

The St. Thomas Diving Club's Unlimited Dive Pass is included in all dive packages. If you are a certified diver with your own equipment you can use your dive pass on all 4 of our dive boats, including the 68-foot *Mohawk II*, the 53-foot *Caribe Diver* or *Dive and Dive II*, leaving from 3 separate docks.



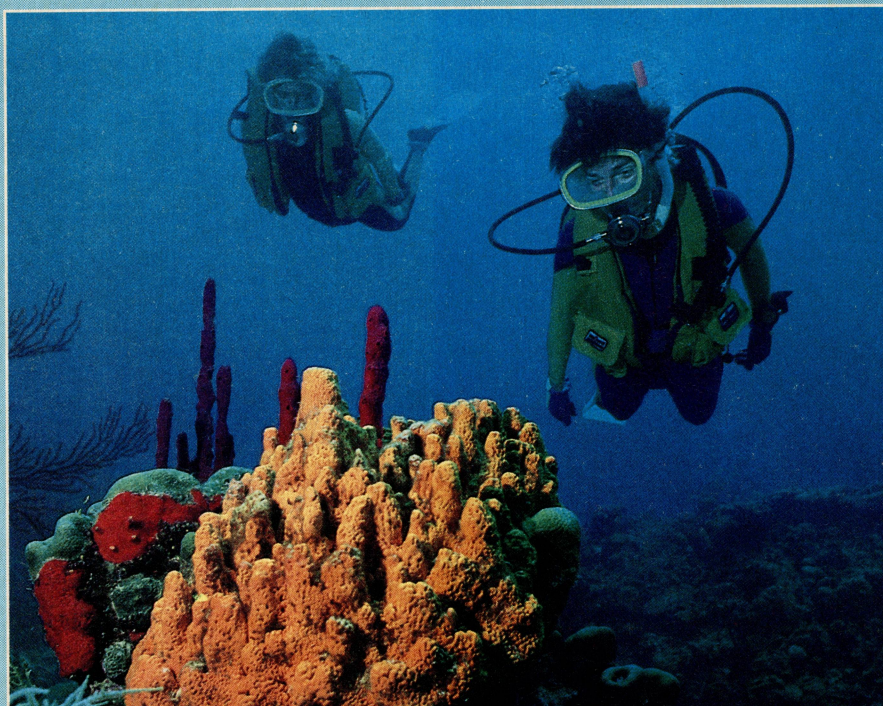
Villa Olga, managed by Gail and Fred Grindle, is a hardcore diver's resort, with accommodations for both divers and nondivers. Headquarters for the St. Thomas Diving Club, Villa Olga has a retail center for dive and boutique items and rental and repair facilities as well as the outdoor and air-conditioned classrooms. Eight rooms high on a hillside overlook the Villa Olga pool and outdoor classroom, and provide a spectacular view of the town of Charlotte Amalie and St. Thomas Harbor. Four additional rooms at the base of the hill lack the magnificent view, but are closer to the dock, bar and dining area and you don't have to climb stairs to reach your room. Dinner isn't served at Villa Olga, but an excellent Chart House restaurant with an ocean view is only 100 feet away. Seven additional restaurants, where you can get anything from a hamburger to French or Italian cuisine, are within a five minute walk. And, for shoppers, town is but a 20 minute walk (or short taxi ride) away.

U/W Photo Course Tours: Jim and Cathy Church bring their U/W photography course tours to Villa Olga from May to September. They use the air-conditioned classroom at Villa Olga for lectures and dive from *Mohawk II*. Their 12 hour a day courses are designed for serious beginning and experienced U/W photographers, and are seven and ten days in length. The Villa Olga classroom is available to other groups during the months when the Church photo courses aren't in session. Write to Villa Olga for details.

*Mohawk II* is STDC's 68 foot luxury dive boat. Accommodating up to 16 divers, it features air-conditioned state-rooms, spacious upper deck for sunbathing, a full sized galley and dining area, individual lockers for dive gear, an ample number of tanks and compressor with storage bank. Designed for overnight charters, *Mohawk II* can reach virtually any dive site in the U.S. or British Virgin Islands. Jim and Cathy Church use *Mohawk II* for exclusive day and overnight diving during their U/W photo courses. Group rates are available.

Bolongo Bay Beach and Tennis Club is STDC's largest branch operation. Bolongo Bay has a magnificent beach and offers boardsailing and other watersports in addition to diving. The dive shop and compressor are but 100 feet from your room. The rates are more expensive than at Villa Olga, but Bolongo offers evening restaurant service, live entertainment, the beach and other amenities.

Sea Adventures, owned and managed by Janet Manown, is at Frenchman's Reef Hotel and also has a hotel package with Windward Passage Hotel in Charlotte Amalie. Divers can rent all necessary gear, or can store their own gear at the Sea Adventures shop. A 26 foot Pacemaker and 21 foot SeaCraft are used to take divers to the *Cartanser Sr.*, Cow and Calf, Flat Key, Frenchcap and other sites. The boat captains, of course,



Orange sponges, Cane Bay Gardens.

## ST. THOMAS HOTELS

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**CARIB BEACH HOTEL**  
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**PINEAPPLE BEACH RESORT**  
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**POINT PLEASANT RESORT**  
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(809) 775-3495

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**SECRET HARBOR**  
P.O. Box 7576  
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(809) 775-1010

**THE ANCHORAGE CONDOS**  
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St. Thomas, USVI 00801  
(809) 775-4844

**VILLA OLGA**  
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(809) 774-1376

**VIRGIN ISLE HOTEL**  
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**WATERGATE VILLAS**  
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**WINDWARD PASSAGE HOTEL**  
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**YACHT HAVEN HOTEL & MARINA**  
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St. Thomas, USVI 00801  
(809) 774-9700; (800) 524-7877



are dive instructors. Instruction is given informally at the shop, with pool lessons for one or more students in one of the Frenchman's pools. In addition, scuba diving, half and full day snorkeling, fishing and sailing trips, as well as an evening harbor cruise, are available.

A shuttleboat makes regular trips from the dive boat dock to Charlotte Amalie, so divers have ready access to St. Thomas' many shops and restaurants. Thus, a rental car may not be a necessity.

Virgin Islands Diving Schools/Supplies, Inc., owned by Marvin Ellis and Sue Leferson, is across from Yacht Haven Hotel in Charlotte Amalie. A large portion of VIDS's business is providing resort courses for cruise ship passengers and hotel guests. The operation is standardized and efficient: VIDS provides lockers for personal belongings, basic instruction and transports the divers to Coki Beach with large, shaded safari buses. This Scuba Adventure program takes three and one half hours, usually enough for most beginners.

For experienced divers, VIDS has a 54

#### ST. THOMAS YACHT CHARTER BROKERS

**V.I. WATER SAFARIS**  
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foot Morgan and a 34 foot Buccaneer sloop to take divers to a variety of open water dive sites. VIDS also offers several instruction programs including PADI specialties, CPR, first aid, life saving and certification courses up to instructor. VIDS has a full line of dive equipment and is the local Scubapro repair station.

Underwater Safaris (of St. Thomas) is at Yacht Haven Hotel and Marine (formerly the Sheraton). Owned by Tricia Huff, Underwater Safaris is a full service dive shop with two dive boats, 41 and 30 feet in length, for day diving. There is a 53 foot sloop that sleeps six for daily or overnight trips. In addition to serving Yacht Haven guests, they will pick up divers from any hotel. Underwater Safaris offers a free introductory pool lesson.

Watersports Centers, at Sapphire Beach, owned by Gary Deering, has three boats, 42, 32 and 26 feet in length, docked just a few yards from the dive shop. Thus, Deering can take you to a variety of dive sites and can separate novice and experienced divers. The shop has boutique items, but offers minimal

## Don't be in the dark...

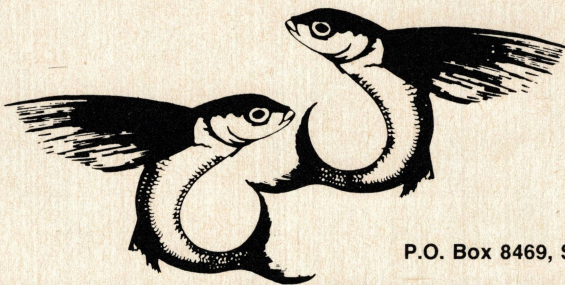


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every month

## Underwater Safaris

in St. Thomas  
U.S. Virgin Islands



- Scuba Rentals
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- Camera Rentals
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- UNLIMITED SCUBA
- ALL GEAR  
with onboard compressor
- PROFESSIONAL CAPTAIN/DIVEMASTER
- WINDSURFING
- WATERSKIING
- GOURMET COOK

- Island-hop on your own yacht,
- Explore Anegada and it's  
treasure-laden wrecks
- Dine under the stars  
in secluded anchorages,
- Dive the crystal clear waters  
to reefs, caves and wrecks,
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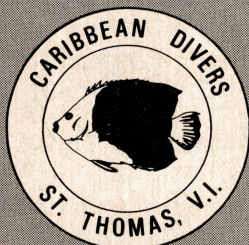
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An arrowcrab on a purple seafan.

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scuba equipment. Instruction is given in a relaxed atmosphere on the small shop porch. At this writing, Sapphire is closed for the down season and is undergoing an ownership change.

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V.I. Scuba Sail Charters, owned by Chris Moore, is a booking agent for a fleet of owner operated sailboats, many of which have compressors aboard. The boats range in length from 50 to 80 feet, sleep six to eight guests and have two to four crew members. You can arrange to have an instructor on board if you wish instruction, or to have a divemaster aboard if you are certified. Meals are prepared by the crews, scuba gear can be provided if desired.

V.I. Water Safaris, owned by Captain Charlie and Marty Peet, is also a booking agent for owner operated power and sailboats, many of which are equipped with compressors and scuba equipment. Crews and meals are provided and you can specify that a dive instructor be aboard if you wish instruction. At Yacht Haven Marina, V.I. Water Safaris can make hotel arrangements at Yacht Haven, an easy walk from the dock.

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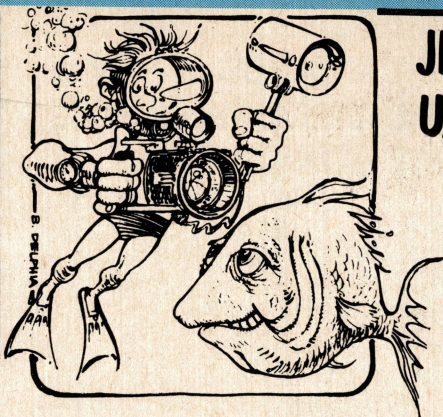
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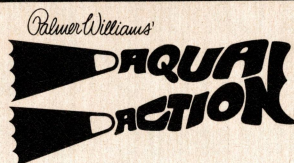
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# ST. JOHN

### NATURE LOVER'S DELIGHT

After a scenic ride to Red Hook, at the east end of St. Thomas, you board the St. John Ferry for the 20 minute trip to Cruz Bay, St. John. The ferry rates are reasonable, sheltered seating is ample and there are no excess baggage charges. You can also take a ferry from Charlotte Amalie (across from Windward Passage Hotel), the Caneel Bay Ferry from the National Park Dock, or fly over on the Goose (next to the post office by Frenchtown). Because two-thirds of St. John is national park, it doesn't have the population or hustle and bustle of St. Thomas. The sights are largely natural with abundant forests and beaches. The park has a variety of hiking trails which often follow old Danish plantation roads. Guided hikes travel through different vegetation zones, and evening slide presentations highlight the culture, history and marine life of the islands. And, for snorkelers there is a marked trail at Trunk Bay.

For camping, consider the Cinnamon Bay Campground where you can choose a cottage, tent or bare campsite. Cooking is done on Coleman stoves or charcoal, restrooms are communal and the camp store stocks basic supplies. Maho Bay Camps also has tent-cottages on wooden decks, centrally located bathhouses, barbecue areas and a camp store.

### DIVE SITES

Among John's dive sites is **Carvel Rock**, about two miles north of Cruz Bay. A cluster of stone boulders jutting above the surface just east of Congo Cay, it offers both shallow coral gardens and

### ST. JOHN DIVE OPERATIONS

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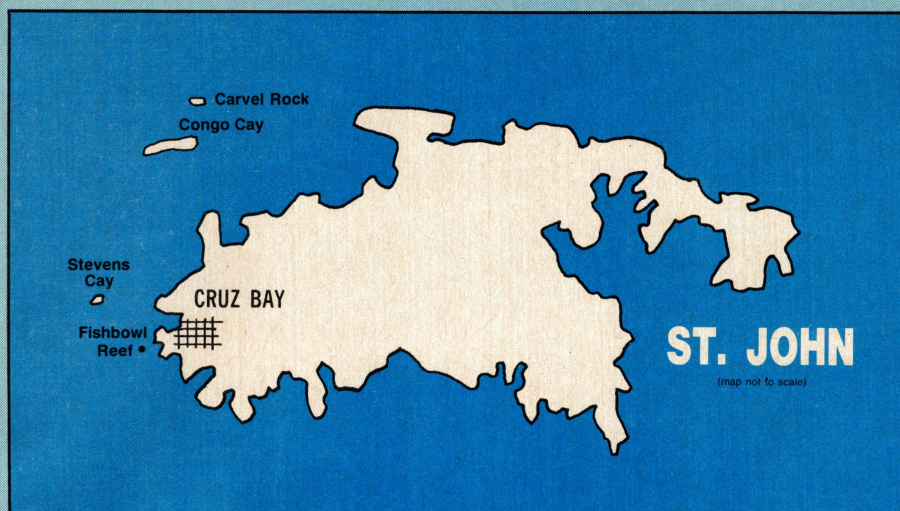
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(809) 776-6111

**ST. JOHN WATERSPORTS**  
(The Dive shop/  
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P.O. Box 70, Cruz Bay  
St. John, USVI 00830  
(809) 776-6256





deeper reef diving. Schools of tarpon frequent the shallows on both sides. The rocky slope, which drops down to about 90 feet, is adorned with corals, gorgonians, seaweeds and sponges. At the bottom, you may see rays and large fish.

**Congo Cay** is a long, narrow rock that rises abruptly from the sea bottom. At the western tip, the walls drop vertically—then slope down to 80 feet. You will see purple seafans and other gorgonians, sponges, fish and a variety of rock formations. Watch for tarpon, eagle rays, manta rays and barracuda deep.

**Fishbowl Reef** is only a few hundred yards from Cruz Bay. We photographed schools of grunts beneath coral ledges at depths of 25 to 35 feet or less. The undersides of the ledges were encrusted with flaming red sponges and other colorful marine life. At **Stevens Cay**, we found copper sweepers hiding beneath coral ledges in less than 25 feet of water.

### DIVE OPERATIONS

Coral Bay Watersports: Dave Bruer specializes in personalized service for small groups. He has a 22 foot boat which accommodates four divers and plans to acquire a 33 footer. He has a hotel package with Estate Zootenvaal and can also arrange for short-term rental of private homes. Dave has dive sites for both novices and experienced divers.

Cruz Bay Watersports (formerly Down Town Dive shop) has a 33 foot Osprey for one to nine divers, and frequently dives Carvel, Congo, Cow and Calf, and Little St. James. The shop is small, but has a selection of basic scuba gear and rental equipment. Inquire for short-term house rental and hotel package.

### SEA BREEZE VILLAS

Escape to the Island of St. John. Enjoy scuba diving our beautiful reefs and Wreck of the Rhone. See the Virgin Islands National Park with its famous beaches. Private and secluded villa or apartment with a spectacular view from your own gallery. Free transportation to beach and watersports.

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The Dock Shop is at the base of the dock where you disembark from the St. John Ferry. Owned by Gary Deering, the shop has a selection of dive equipment and boutique items, rental snorkel gear and can arrange day sailing. For two or more divers, Gary's boat (from St. Thomas) picks you up and returns you to the dock. A single diver could take the ferry to Red Hook.

Jim Travers Caneel Bay Diving and Cruz Bay Watersports is at, and has hotel packages with, Caneel Bay Plantation. The 35 foot *Jumbi Jay*, a custom built dive boat, can take divers north or south, depending on the weather, to sites such as Congo, Johnston's Reef, the Two Brothers or the *Rhone*. All dive gear is available for rental, but sales are not available at this time.

St. John Watersports (The Dive Shop; Cinnamon Bay Water World) is at Mongoose Junction. They use a 22 foot AquaSport and a 21 foot SeaCraft to take divers to sites such as Congo West End, Carvel Rock, Fishbowl Reef and Stevens Cay. The shop has basic rental scuba sales, snorkel equipment and a boutique. This is the only fill station in the Cruz Bay area (except for Jim Travers).

### ST. JOHN HOTELS

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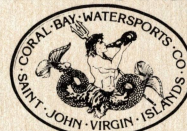
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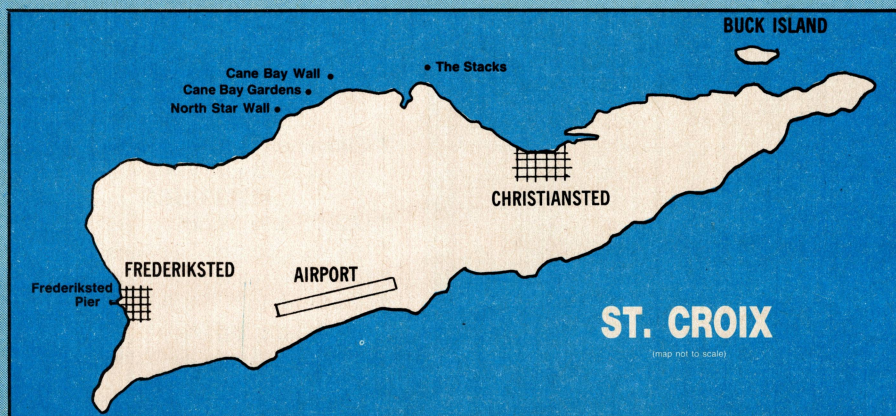


# ST. CROIX

## PICTURESQUE, LOW KEY

If you fly in on the Goose, you will be only a few minutes by cab from Christiansted—the largest of the two towns on St. Croix. King's Wharf, King's Alley, King Street and Strand Street, of Christiansted, form a maze of interesting restaurants, hotels and quaint shops. If you stay at the King Christian Hotel, Anchor Inn, King's Alley Hotel, Club Comanche Hotel or Caravelle Hotel, you will be within walking distance of a complete range of services including dive operations. But if you want beaches, golf or tennis courts, you must choose a hotel away from town.

The Buccaneer, just two miles east of



**Top: Buccaneer's Beach at Cutlass Cove. Above: Black coral on West Salt River Wall. The island of St. Croix is surrounded by deep water, with steep walls just offshore. If you arrive on the island at Alexander Hamilton Airport, you can take a cab or rental car to Christiansted or quiet Frederiksted.**



Christiansted, is St. Croix's largest resort. It is in the middle of a championship golf course, with 159 rooms spread over 240 acres of green lawns, well-trimmed shrubbery and gentle, rolling hills. For divers staying at The Buccaneer, we suggest taking a room in the Dubloons, which are at Cutlass Cove Beach, near the Beach Shack (watersports center) and Mermaid restaurant. All the basic amenities will be within walking distance of your room.

If you arrive at Alexander Hamilton Airport, in the middle of the island on the southern coast, you can take a cab or rental car to Christiansted or Frederiksted. At the western end of the island, Frederiksted is a quiet town with fascinating old Danish architecture. Shopping isn't as varied as in Christiansted, but you may be pleasantly surprised. We enjoyed the local restaurants and our stay at the Frederiksted Hotel.

### DIVE SITES

Surrounded by deep ocean waters, St. Croix juts upward from the seafloor like a huge mesa. Thus, she has steep, subterranean walls just off her shores.

**The Stacks** features a petite, mini-wall that drops vertically from about 35 to 75 feet. It is covered with hard corals, deep-sea fans, red finger sponges and has several small basket sponges. It is a

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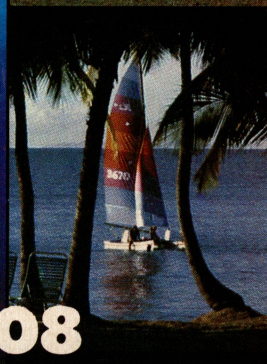
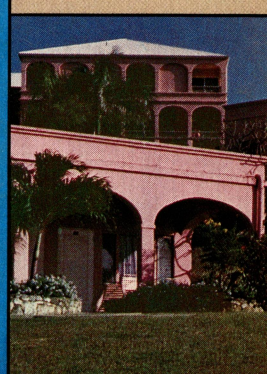
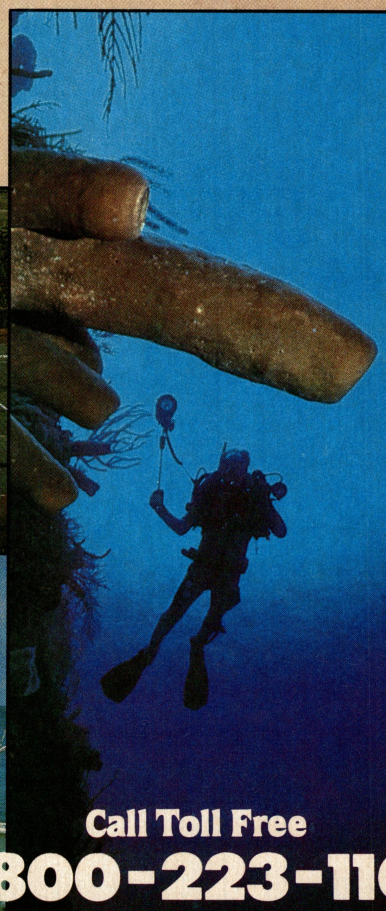
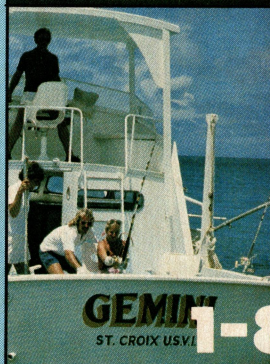
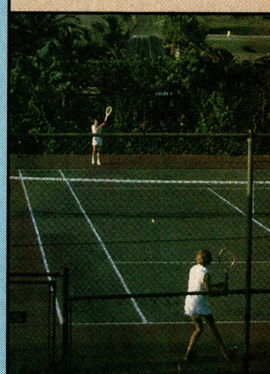


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at

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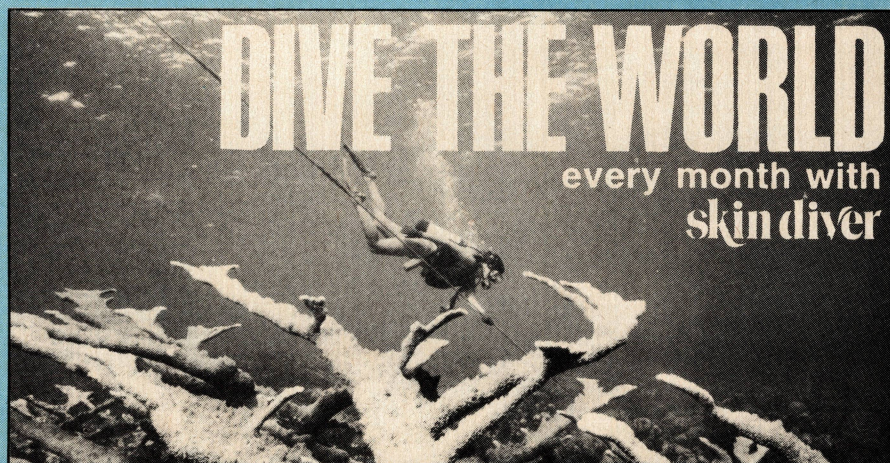
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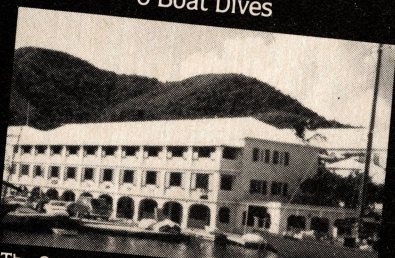


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Photo: Steve Frink

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good introductory dive for beginners because it gives the thrill of diving a vertical wall, but without the need to dive deep.

**Cane Bay Wall:** This very popular drop-off dive is 175 yards offshore. The top of the wall starts at 50 feet and slopes steeply to 130 feet and deeper. Marine life found here includes purple seafans and tube and basket sponges.

**North Star Wall,** one mile west of Cane Bay, is a spectacular drop-off 130 yards offshore. Here the drop-off comes closest to shore and closest to the surface. The wall starts at 25 feet and drops vertically to 60. Then it slopes sharply on an 80 degree angle to 150 feet before cutting back under the wall.

**Cane Bay Gardens,** at the top of Cane Bay Wall, is a beautiful dive site where you needn't drop below 35 feet of water. It has large coral heads separated by narrow valleys with red encrusting sponges and clumps of sponges adorning the scene. Reef fish—including scorpionfish and scrawled filefish—are abundant as are arrowcrabs and banded coral shrimp are everywhere.

**Frederiksted Pier** is an exciting, special dive site. As you swim through the forest of pilings of the one quarter mile long pier in about 35 feet, you see a profusion of life growing on and around them. For many divers, the seahorses are the main attraction, but please avoid the temptation to handle these shy, slow-moving, delicate creatures. Although there were other fine dive sites nearby, we didn't see them. Nothing could have torn Cathy away from the seahorses.

## DIVE OPERATIONS

Caribbean Sea Adventures is a full service dive shop on King's Wharf at Christiansted, just below the King Christian Hotel and next to an excellent Chart House restaurant. Owner Larry Angus has three dive boats—the 40 foot *Deliverance* for 12 to 15 divers, the 28 foot *Scorpio* for up to 12 divers and the 23 foot *Sea Sprite* for up to six divers. CSA has a branch operation at The Buccaneer Hotel (east of town); You board the boat at Buccaneer's dock at Cutlass Cove Beach. They also have hotel packages with Grapetree Beach Hotel and Tamarind Reef Beach Club.

V.I. Divers is a full service dive shop at the Pan Am Pavilion, a short walk from King's Wharf. Manager Matt Kennedy uses a 40 foot Lindsay for 2 to 18 divers. They have hotel packages with nearby Club Comanche, and St. Croix by the Sea (west of town), which has a shuttle service to town.

Dive Experience, a new company formed by Michelle Pugh, is at Salt River Marina (west of town). She has a 40 foot dive boat and a hotel package and specializes in dive charters and instruction.

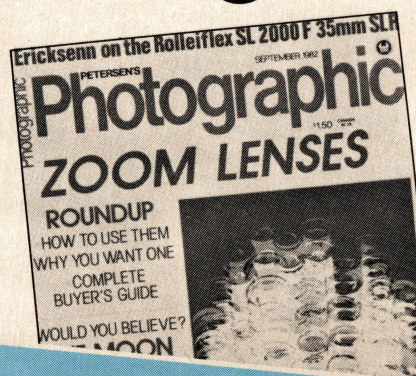
Sea Shadows, owned by Steve For-dyce and Libby Wessel, specializes in beach dives from Salt River to Annaly



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Bay. They will take one or more divers out anytime, day or night. Their specialty dive is the Cane Bay Wall, only 100 yards from shore. The shop has air fills, rental gear, refreshments and a hotel package with Cane Bay Reef Club.

North Star Dive Tours, owned by Buzz Chory, also specializes in beach dives at Cane Bay Gardens and Cane Bay Wall, about 150 yards from shore. They can provide rental equipment and air fills. Because the facility is by the shore, you can simply drive up and go diving.

## ST. CROIX HOTELS

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(809) 773-2100

**CANE BAY REEF CLUB**  
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Kingshill  
St. Croix, USVI 00820  
(809) 778-2966

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**FREDERIKSTED HOTEL**  
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## BUCK ISLAND REEF NATIONAL MONUMENT

If you wish to take the family snorkeling, take them to Buck Island. About four miles northwest of Christiansted and administered by the National Park Service, Buck Island features a snorkeling trail with U/W markers describing what you see and keeping you on the trail. Several operators, such as the Reef Queen, have daily snorkeling trips to Buck Island. Ticket booths are in the Pan Am Pavilion and on King's Wharf.

## CONCLUSION

The U.S.V.I. offers a wide variety of diving experiences and topside activities. While we've named all the dive operations we know of at this writing, we were unable to describe and/or list every dive site and hotel. For a more detailed description of the U.S.V.I. in general, purchase a copy of *U.S. Virgin Islands Alive* (Alive Publications, Ltd.) by Harriet Greenberg. It is available in paperback at many U.S.V.I. retail outlets.

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extra night \$65<sup>00</sup> per person

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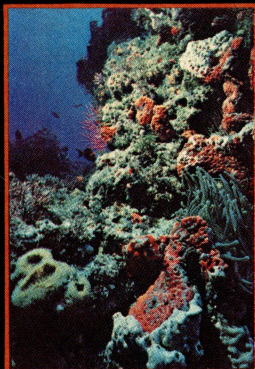
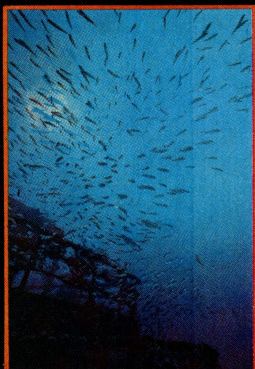
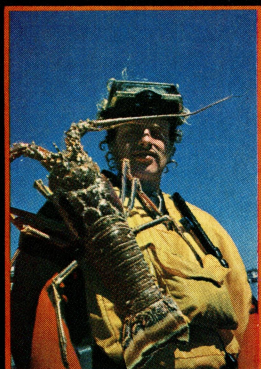


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Photography by Mark Lawrence

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### PRO DIVE LAUNCHES NEW DIVE BOAT

Professional Diving Schools of Florida (Pro Dive) has added another diving vessel to its fleet. *Pro Diver*, a new custom built 42 foot dive boat, was built with emphasis on room and comfort for the diver. Like many large boats *Pro Diver* is certified for 40 passengers, but this vessel was customized for 24 divers.

Pro Dive designed this vessel from many years of experience in the dive charter business, with a variety of divers in mind. Her special features include two walk-throughs in the transom, built-in mask defogger boxes for mask storage and cleaning, a custom rack for pole spears, and a storage area for photographic equipment. In addition, Pro Dive installed its unique beverage dispensing system: Just push a button for the soft drink of your choice, free! There is plenty of fresh water for showering between or after diving, too. And last, but not least, the boat has a first for any dive boat in South Florida—an U/W recall system.

These benefits would mean nothing without the experience of Pro Dive's captains Bill and Steve and their crews. These captains have charted over 60 of the best reefs and wrecks, all less than 30 minutes from the Bahia Mar Yachting Center. Water visibility is an average of 60 feet and reaches 100 feet plus.

Pro Dive's crew are all certified dive-masters and instructors. They're aboard for the divers' safety as well as enjoyment. Any diver with little or no ocean experience wishing to dive with a dive-master may do so for an added cost of \$15. For the ocean diving neophyte, the opportunity and experience is rewarding. You will learn boat and ocean diving procedures, including drift diving, marine life identification and lobstering. Upon completion of your two dives, you will receive a PADI decal updating your certification card for 1984 ocean diving. Open water training dives are available for basic through advanced levels on a daily schedule. Specialty certification dives, including wreck diving, underwater hunting, deep diving, U/W photography and night diving are also available.

Professional Diving Schools of Florida is a PADI Five Star training and resort facility. Diving and hotel packages include a spacious room at the Bahia Mar Hotel (right on the ocean), a full breakfast, two dives a day, tanks, backpacks and weightbelts. Package prices are \$69 to \$89 per day.

Whether you are looking for adventure on a wreck, exploring a reef, taking photos or hunting for lobster, it's all here in Ft. Lauderdale, on Florida's Gold Coast. For further information call toll free (800) 772-DIVE.



# SDM travel

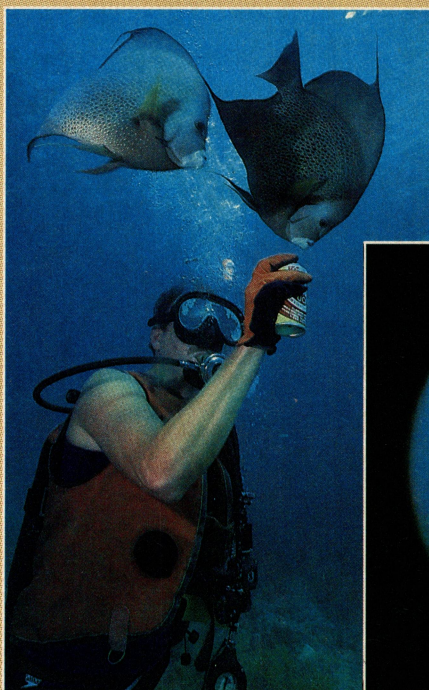
## SECTION

**T**here is a certain magic in planning a trip to dive at a really good island resort. One anticipates succulent fresh seafoods served at superb restaurants, a comfortable hotel, an abundance of night life or walks in the tropical moonlight, and diving very close to one's hotel door. The magic would be even more enjoyable if the tropics were close enough so we could make those island resort vacations more frequently.

They are and we can. Down in the middle of the Conch Republic, the Florida Keys, the island city of Marathon has its own dive resort, complete with tropical flavor and the same treatment you expect in the Caribbean.

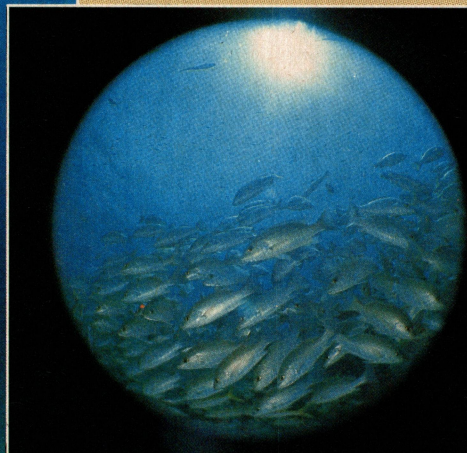
The resort package put together by the Holiday Inn on Key Colony, Alamo Car Rental and Divers Unlimited makes this American tropical resort a temptation almost any week or weekend of the year. Serviced by scheduled commuter airlines connecting with major carriers at Miami International Airport, Marathon is only a very few hours from any large city in the United States. Add the advantage of being connected to the Florida peninsula via U.S. Highway 1 and this resort island becomes even more attractive.

Whether you fly or drive to the island, stay a couple of days or several weeks, Marathon has enough attractions to keep you occupied. If fresh seafood is one of your downfalls then your diet is definitely in jeopardy in the Florida Keys. Fresh grouper, snapper, shrimp and lobster can be sampled at no less than a dozen excellent Marathon locations starting right at your hotel. With your rental car or your feet you can choose from a wide variety of locations that serve delicately pre-



### MARATHON'S MAGIC

TEXT AND PHOTOGRAPHY  
BY STEVE LUCAS



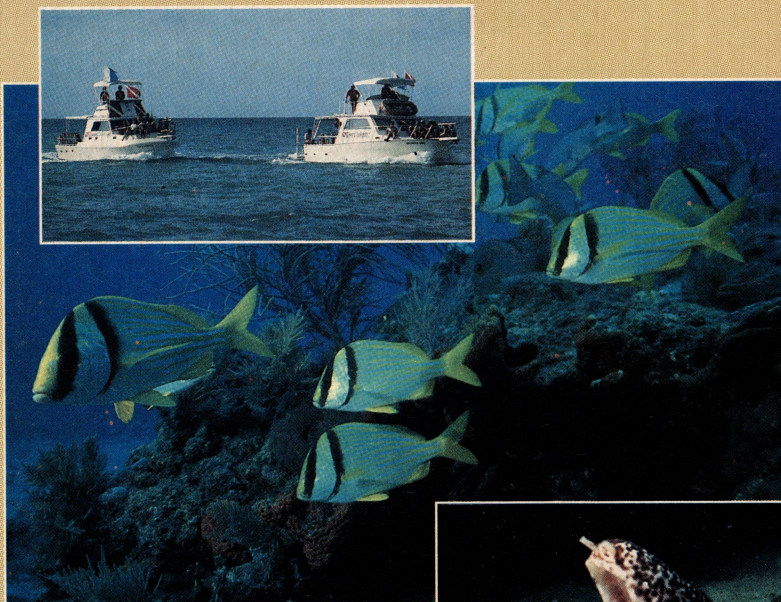
pared island specialties. Restaurants that Dave Inlow, manager of Divers Unlimited Marathon, says are on the must visit list include the Quay which is in easy walking distance, Kelsey's at Faro Blanco, the Buccaneer Lodge, Joe's Steaks & Seafood and Gallagher's Little Gourmet.

When your penchant for seafood is soothed but your party fever is not, Marathon's night spots are ablaze late into the night. Live music is available all over town with some of the hottest at or near the best restaurants. Starting at the Holiday Inn you can work your way around town through the Angler's Lounge above Kelsey's and

back down to the Buccaneer. For the more adventurous there is the Brass Monkey or the Pub at nearby Duck Key. If parties are not on your list of after dinner favorites then you can consider a late night swim in the Holiday Inn pool or a leisurely stroll along the adjacent marina docks.

Although diving is the principal attraction, the Florida Keys offer a multitude of things to do and see. Since Marathon is between Miami and Key West, non-diving members of a group can easily visit either on a day's outing. Key West is full of color and history and Miami has the world famous Seaquarium, Planet Ocean and other





**Previous page:** Left, Dave Stancil feeds the secret Divers Unlimited concoction to gray angels. Right, grunts off Marathon. **This page:** Top, the Divers Unlimited fleet. Above, porkfish. Right, a spotted moray.



water related attractions, plus some of the finest shopping in the state. Marathon itself offers plenty of activity including jet skis, sailboat charters, nearby tourist attractions, and assorted shops and boutiques.

If your only interest is to get wet you can get in as many as four tank dives a day, five when the boat goes out for a night dive. With the Divers Unlimited shop and docks directly behind the Holiday Inn, it is a few quick steps from your hotel room to the boat. The schedule allows you to dive two tanks in the morning or afternoon or both. As a part of the largest retail dive store operation in the United States, the shop is extremely well equipped for sales and rentals. It is the training facility for one of the largest professional dive instructor schools in the country, Underwater Careers International.

Diving Marathon is different than in the Upper Keys. Divers Unlimited uses a mixture of deep and shallow reefs

instead of the shallow only approach typically offered. The first dive is likely to be on one of several deep patch reefs. The sand flats that surround the reef have an average depth of 60 to 80 feet. The coral mounds climb high off the sand as the center of the reef is reached. With visibilities that can range upward of 50 feet during the summer and average 30 to 40 feet in winter, the reefs are alive with fish and small reef organisms. The deep patches offer excellent opportunity for macro and close-up photographers including frequent encounters with oddities such as the well camouflaged stonefish. Bright red clinging and encrusting sponges are common, giving the reef plenty of color mixed among the low growing corals.


On the shallow areas the bottom is riddled with low overhangs and small tunnels teaming with schools of blue lined grunts, sergeant majors, goatfish, porkfish and gray angels. At Yel-

low Rock the angels have been trained to eat a secret Divers Unlimited canned concoction (cheese spread with a Divers Unlimited label on it) and will constantly harass you until fed. Pillar Patch has one of the few remaining stands of rare, living pillar coral found in the Middle Keys as well as a respectable fish population.

One of the most popular sites, Sombrero Reef, is easily located because of its large lighthouse. The reef probably has more brain coral and moray eels than any other in the Keys. Well defined sand channels run throughout like streets through a small town. Once you have been down the "street" a few times, finding your way

around is like walking down your own city block. Cleaning stations, where fish gather to have their gills and sides picked clean of parasites, are all through the maze and offer excellent photo opportunities.

With an excellent group of near shore reefs, relatively short boat trips, fine restaurants, night life, attractions and a quality base hotel, the Divers Unlimited package makes it easy to get away for a day or longer whenever the diving impulse strikes. Trained operators staff the travel department and can fully answer your individual questions. Call (800) 327-2740, in Florida (305) 981-0156. For written inquiries contact: Divers Unlimited, 6023 Hollywood Boulevard, Hollywood, Florida 33024.

Rates are very competitive, making the temptation to sample Marathon's magic and disappear for a few days almost an uncontrollable urge. Let yourself go! 



## M/V ISLAND SHARK

Captains Frank and Dee of Frank's Dive Shop, have acquired a new dive boat, the *Island Shark*, to be delivered April 1, 1984. The 90 foot *Island Shark* will be a mini-cruise ship designed for divers, snorkelers and non-divers.

For the divers there will be a specially built platform for easy entry and exit, two 17 cfm compressors, plus two chase boats for safety and exploring little islands. For non-divers there will be a carpeted dry lounge with a choice of movies anytime of the day, backgammon, chess, checkers or cards. On the upper deck there will be a shaded lounge and sun-deck, shuffleboard and skeet shooting.

Staterooms will be carpeted and have private heads and showers, dressing tables, full length hanging closets and stereos. The boat will be air-conditioned for 24 hour comfort.

Special cruises scheduled for this "Palm Beach Love Boat" include photo instruction land and underwater; island hopping; gambling trips; weight reduction; and medical seminars. 🐠

## TIARA BEACH HOTEL

The Tiara Beach Hotel in Cayman Brac is the largest acquisition of Divi Hotels, a small, but expanding hotel chain. The newly acquired 30 room hotel caters to skin divers. It is currently undergoing renovations and expansion, including the addition of 22 rooms. When all phases of construction are completed, the Tiara Beach Hotel is expected to have 122 rooms.

The hotel, which is only two miles from the Cayman Brac Airport, features a one-third mile white sand beach in front of the hotel, a tennis court, a large swimming pool and beautiful Poseidon Dining Room which serves a local and continental cuisine. Each room is air conditioned and has a private bath or shower. Other special features at the Tiara Beach Hotel are a gift shop and dive shop in the hotel, Sunfish and Windsurfer rentals, local entertainment and a unique cocktail bar which extends out over the sea. 🐠

## SCUBA NEWS

World of Scuba News Briefs is a newsletter issued every two months by a full service diving facility in south Florida. This publication furnishes information about diving activities in the Palm Beaches as well as information about popular Keys and Caribbean diving destinations. For your free issues please send your name and mailing address to World of Scuba, 902 S. Federal Highway, Lantana, Florida. 33462. 🐠

# RUM CAY

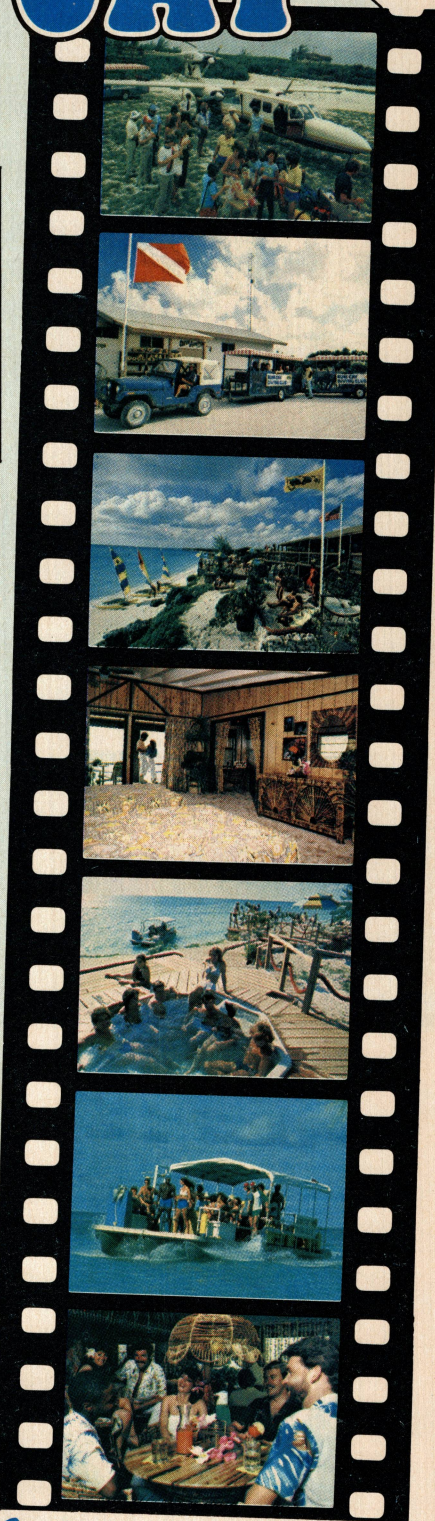
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# BIMINI

PARADISE  
NEAR



## TEXT AND PHOTOGRAPHY BY STEVE LUCAS

If anything has kept Bimini from becoming a truly world-class dive destination, it is one simple misconception. Its long time reputation as a big game fishing resort, combined with its proximity to the Florida coastline, has perpetuated the visualization of a touristy, overdeveloped and densely populated resort island. Even the television credit card commercials make it sound as if it were an extension of Miami Beach. "I bought my baubles in Bimini," the bauble clad young woman declares. The ad implies that almost anything a credit card limit would permit could be purchased on this tiny seven mile, 700 foot wide pair of Bahamian islands. That, added to the notion that an island close enough to Miami to be a suburb must be highly commercialized, is far from fact.

In truth, credit card bearing tourists have to look hard to find more than a handful of shops in which to use them. The center of commercial interest, North

Bimini, is a lazy stretch of powdery beach and narrow road, lined with rows of neat houses and small business establishments catering largely to the local economy. The atmosphere is quiet during the day, hot at the night spots and the locals treat tourists as personal guests. The mood is representative of the lifestyle at the most out of reach out-island.

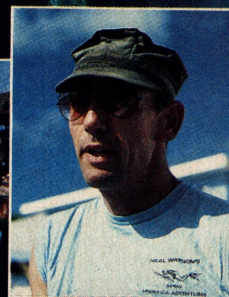
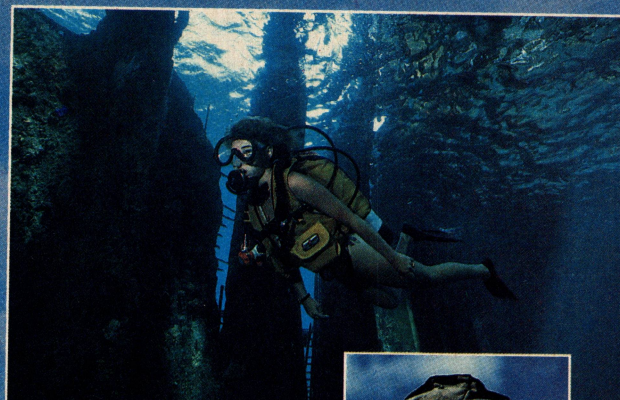
With the package at Neal Watson's Bimini Undersea Adventures and the Bimini Big Game Fishing Club this very near out-island is one you can reach in one-half hour from Ft. Lauderdale with a limited amount of dive gear and only one suitcase—a very small suitcase. The suggested attire for day is a pair of shorts and T-shirt with a swimsuit or two thrown in for the pool, beach and diving. Evening wear is a bit dressier; you may want to add flip-flops! This does not imply there is a lack of class. One look at the Big Game Club's excellent accommodations, tennis court, pool side bar, marina and

quality restaurant menu will dispell that impression. At the top of the list of appetizers is *escargot bourguignon*, fresh Bimini smoked gamefish, conch fritters, native conch salad and chowder. The entrees seduce your appetite with broiled spring chicken, roast prime rib of beef, prime New York sirloin, broiled filet mignon and, of course, native broiled lobster tail, Bahamian grouper, cracked conch and more, much more. The luxury of dining in Bimini is you don't have to dress for Paris to savor the *escargot* or go to New York for sirloin!

Bimini has world-class diving and a top drawer undersea adventurer, Neal Watson, a real life, diving folk-hero. An evening with Neal will provide you with enough tall tales to re-tell for a lifetime. When he is on the island this quiet, unpretentious adventurer can keep you up well past the wee hours with tales of his escapades in the deep, of finding and losing millions in gold and treasure, dou-



Right Terry Skiles cruises through the *Sapona* wreck in 15 feet of water off Bimini. Inset: Neal Watson of Bimini Undersea Adventures. Below: Snorkelers on the wreck of the *Sapona*.

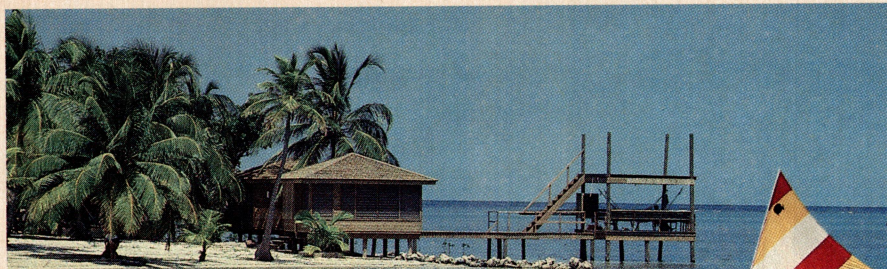


bling in the movies for James Bond; his unusual flying machines, karate encounters and other comparably astounding achievements.

Neal is the holder of something close to a dozen world records including the longest underwater distance swim on scuba, 60 miles; the distance record in flying a miniature, one man helicopter, called a gyrocopter, from the U.S. to Freeport (only to be arrested immediately for illegal entry); smashing the greatest number of bricks with his bare head; and scuba diving to a literally mind bending depth of 437 feet on compressed air. This last record is one he flatly states he would never attempt again, nor does he recommend anyone try it since the chances of survival are negligible. The narcosis was so completely overpowering he has no memory of actually reaching that depth. Only the pin he cannot remember placing on the measured line







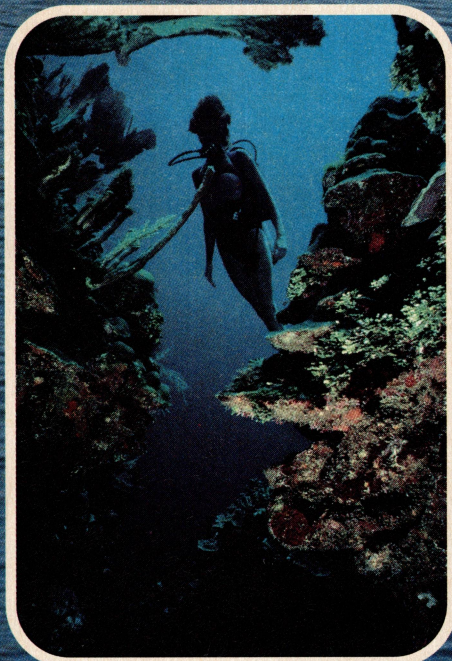
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## BIMINI

proves the accomplishment. The immediate image conjured by some of these records of a near insane, daredevil stuntman is far from that of Neal Watson. In reality he is a solid, successful businessman who has an insatiable appetite, now tempered with age, for pushing himself to find his own limitations. He has little memorabilia on display to testify to his accomplishments and infrequently mentions them unless queried. Only his solid, muscle beach physique and love for his U.S. Marine's cap and T-shirt offer evidence of the tough guy image with which he is sometimes credited.

Diving off Bimini is comparable to the best in the Bahamas or Caribbean. Lying on the edge of the Gulf Stream, the waters are prime territory for big game fish. The deep indigo of the ultra clear stream sometimes comes all the way to shore with visibilities frequently above 200 feet near the wall. On the shallow reefs the big game creatures that inhabit the depths are spotted regularly and 60 to 100 foot visibility is common.

Popular dive sites range over a 20 mile area with the majority less than one-half hour from the dive shop at Brown's dock. With his exceptionally experienced crew Watson has located enough sites to offer three tank dives per day for over a week with never a repeat. The inshore reefs near North Bimini tend toward unusually colorful isolated coral mounds and patch reefs scattered around on a sand floor like a mischievous child's building blocks. Individual two to six foot high reef heads composed of a multitude of densely packed corals are punctuated with odd sponge formations possessing perhaps two dozen individual shapes and colors in a three or four yard wide area. Immense brain corals are common with diameters of four to six feet. Complementing the expected variety of grouper, angels, butterflies and reef creatures, schools of jacks and snapper roam through the mounds without fear of divers.

Amid these schools of fish and patch reefs is one of the most controversial reefs in the Bahamas. Leading seaward, as if carefully placed by stone masons, is a long row of large, rectangular stones that may be a natural formation of beach stone. However, psychics and some supernaturalists believe it to be a part of the lost continent of Atlantis.

Bordering the cays that run beyond South Bimini, the reef takes on a totally different appearance. With names designating the sites as Tuna Alley and the Victories, this is one of the most exciting and photographically appealing systems in the Bahamas. The reef forms within 40 feet of the surface, quickly dropping to depths of 80 to 100 feet. Along its sloping



face the current frequently zips, holding the clear water of the stream close to the formation. The coral face is completely overgrown with life and deeply gouged with hundreds of cuts, tunnels and caverns. Nowhere in the Bahamas or Caribbean is there a greater diversity of sponges or inconceivably combined color schemes. Inside many of the cavern like grottos, schools of glassy minnows swim in perfect unison while outside roam the really exciting denizens of the deep. During their season the reef is frequented by schools of four and five foot long tuna. At any time streamlined three and four foot jacks may rush out of the deep directly into the path of a diver. Even a large hammerhead has been known to patrol the area, sending divers scurrying into the nearest hole to watch the master of the reef swim past.

In easy sight of South Bimini is the wreck of the old concrete freighter *Sapona*. Aground since 1911, she has a tainted history including being used as an illegal liquor warehouse during Prohibition. Now her skeleton is a near perfect underwater photo studio in only 15 feet of normally clear water. Her ribs allow the sunlight to filter through—creating an eerie illumination for wide-angle photographers. Unusually large schools of grunts and snapper are found near her prop and all along her keel. Inside her aft section the engine parts and shaft are covered with sponges and constantly encircled by thousands of glassy minnows.

Bimini's premier site is the carefully controlled continental shelf dive. Deeper than walls at many island resorts, the precipice starts at 90 feet and drops straight off like the edge of the world to over 2000. Because of the depth, all dives are made with an experienced divemaster. The plan allows you to experience deep water in a tightly controlled situation. After a completely thorough briefing at the dock and review on site, all divers enter the water simultaneously and descend down a weighted float line to drift along the shelf. The boat stays with the group by following the float. No one leaves the line when the maximum depth of 140 feet is attained. Bottom time is limited to ten minutes with a mandatory, safety decompression stop at ten feet. The exhilaration of the dive is contagious as the current rushes divers past black coral trees, large basket sponges and often close enough to view a dolphin or marlin. Deeper than is generally recommended by sport diving organizations, the dive has been made by the heads of dive agencies with all agreeing on its controlled safety.

In contrast to other islands, a tempting reason to dive this near out-island is just that, its nearness. Unlike resorts in the Caribbean or deep in the Bahamas, you can make three dives on the day of arrival and two on the day of departure. This is principally because Bimini Undersea

(Continued on Page 102)

## GRAND CAYMAN, B. W. I.



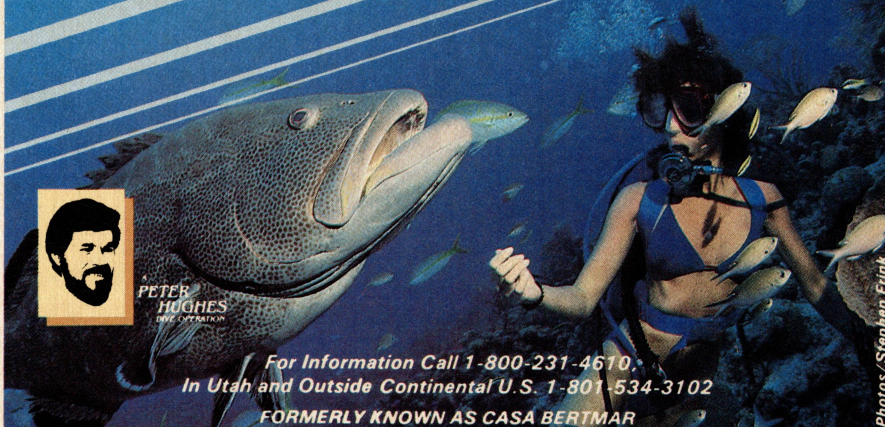
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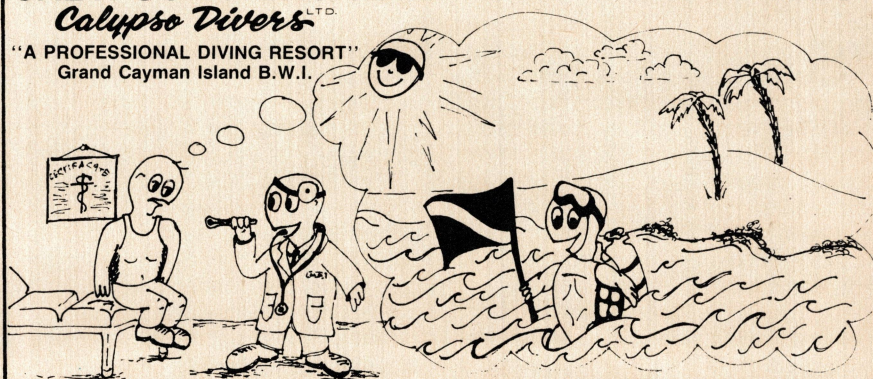
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# South Cove

A cozy quality dive resort  
on Cayman's uncrowded coast.

BY BARBARA CURRIE



photos/Barbara Currie

photo/Paul Tzimoulis

“Soon come” is a familiar Caribbean phrase normally associated with a tide of red tape and interminable wait. But, when Salt Lake City businessman John McMillian and his Caribbean development director Peter Hughes said that, and teamed up for their second scuba venture on Grand Cayman, their promise of another first class dive resort by Christmas came true.

The luxury dive resort of Spanish Cove, their first project, now has a sister property just south of the island's capital of George Town. Formerly Casa Bertmar,

the newly reopened South Cove resort is a Cayman transformation which bears the unmistakable imprint of Peter Hughes' professionalism, but retains the informal atmosphere of the original operation.

During the fall 1983, the 22 unit resort underwent a refurbishing program and added several innovative options for guests, transforming South Cove from a dive lodge to a small, quality resort with a guest house atmosphere.

Capt. Wayne Hasson, formerly dive operations director at Casa Bertmar, is now general manager at South Cove. With

three years' experience diving Cayman's waters, he can assure divers will see the best sites off Grand Cayman—including the incredible “petting zoo” of marine creatures three minutes off South Cove's shoreline. And guests can expect to spend time with the famous trio of large green morays, Waldo, Waldeen and Wilbur, one of this island's most popular photographic attractions.

In addition to upgrading the resort, the new South Cove team has established a unique program for guaranteeing guests the best diving year-round: a “symbiotic”



dive schedule with sister property Spanish Cove, on Cayman's quiet north coast, with immediate access to the magnificent sites on Cayman's famous North Wall. South Cove guests can request to be accommodated on Spanish Cove's boats at no additional charge on any day of their vacation. Information is readily available at the South Cove dive shop regarding the planned daily dives of each.

The other unusual offering is the unlimited diving package. This is no hot air fill promotion, but a genuine vacation opportunity which allows South Cove guests unlimited shore diving, within the safety limits of standard tables, from the ironshore on which it and Spanish Cove are located. Excellent diving with a variety of fascinating sites and plentiful marine life exists directly in front of both resorts.

To make shore diving and boat loading as convenient as possible, one of the first additions to South Cove facilities was the creation of a second concrete slipway carved through the ironshore. Guests now simply walk right into the water.

Other onshore changes complete the transformation of this eight year old resort. South Cove's comfortable double and triple rooms are all fully air conditioned, each with private bath and attractive decor. The two-story guest quarters are adjacent the dining room, bar and dive shop. However, the main lobby and office is now in the new building close to South Church street. The original office is now a complete modern photo center.

The South Cove photo center offers a complete range of services for guests. Overnight E-6 processing, underwater camera and strobe rentals, retail sales, light tables, mounting equipment—in short, everything essential to underwater photographers, including authorized Ikelite repair facilities.

Another immediate revision was the upgrading of the daily menu in the recently refurnished dining room, capable of accommodating 60 guests comfortably. This improvement will please the palates of South Cove guests. (Those with special dietary needs or desires should inform the staff and they will be taken care of.) The lunch and dinner menus vary daily, with the evening's offerings posted by noon in the dining room, to allow guests to dine out if they wish.

Although the main attraction of this comfortable, informal resort is the opportunity for maximum bottom time with minimum effort, the staff works to provide guests with many interesting activities.

On Saturday evenings there is a slide show of underwater and topside attractions of Cayman, followed by live music. A weekly show of underwater candids of guests is presented when convenient for most divers to be present. These are available for purchase.

But since the primary appeal of this property has always been its proximity to



photo/Geri Murphy

**Opposite page, top to bottom: South Cove's comfortable rooms are fully air-conditioned and each has a private bath. The resort recently underwent refurbishing. The resort has immediate access to magnificent dive sites. Above: South Cove dive boat. Right: The well-stocked South Cove dive shop.**



good diving, the new owners have emphasized the importance of quality in both equipment and services.

The South Cove dive shop has been completely restocked with new rental gear. It has two Mako K-14 compressors and a Mako K-15, with a total storage capacity of 21,000 cubic feet and 200 aluminum 72 and 80 tanks.

The resort has also increased its staff to better serve guests. Four divemasters assure personal attention to guests. Dive operations manager Ray Gates oversees the scuba services and works to enforce safety standards and conservation procedures, especially in the South Cove "menagerie" offshore.

The daily dive plan includes a morning two tank boat dive onboard either the 42 foot Bruno Stillman or 38 foot drop front barge. Afternoons are free for shore dives—and the unique experience of South Cove's marine menagerie.

Just a short swim from shore, in 40 to 60 feet, a carefully cultivated coterie of creatures provides exciting underwater action for photographers. The staff presents a show that is both exhilarating and exhausting for those trying to capture every moment on Ektachrome. They have worked to preserve and protect a private petting zoo which includes not only the famous morays, but tame grouper, angel-fish, jewfish, a spotted drum—and even a barracuda. It's a photographers' fairy-

land—for macro photographers as well. On one site, a large anchor rests in the middle of a sandy cut, providing an interesting static setting for photographers.

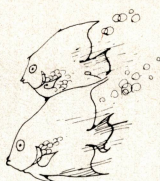
Of course, the morning dives are planned to provide divers with a wall dive on Grand Cayman's dramatic drop-off, followed by a shallow second dive. This, combined with the reciprocal dive arrangement with Spanish Cove, assures divers will see the best Cayman has to offer according to local weather conditions.

One of the most important developments for 1984 at South Cove will be a Scuba Camp session, scheduled for July. The resort was selected by camp director Thelma Clark as the ideal site for the summer program which offers combined scuba diving and tropical and marine biology training sessions for teenagers. Now in its 16th season in the Caribbean, Scuba Camp introduces young people to the excitement of the underwater world through a program that is both educational and entertaining.

South Cove's transformation into a quality—but still cozy dive resort will undoubtedly make it the perfect little sister to Spanish Cove—and provide Cayman *aficionados* with another accommodation option on Grand Cayman's uncrowded southwest coast. And, another Peter Hughes dive vacation opportunity in the Caribbean. 🐠



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## BIMINI

(Continued from Page 99)

Adventures handles air transfers to the island via a charter service. With boats and equipment for 4 to 80 divers, the planes leave Ft. Lauderdale at 8:00 am and arrive in Bimini one-half hour later. Divers check into the Bimini Big Game Fishing Club and are on their way to the first dive within an hour. On the day of departure the schedule allows for two shallow dives and a low level flight back to Florida. Underwater photographers will especially appreciate the added enticement of E-6, machine film processing.

With a principal reservation office in the U.S., getting information, securing reservations or just requesting a copy of the menu, can be done instantly by calling the toll free information line, (800) 327-8150, or in Florida, (305) 656-8633. Write Bimini Undersea Adventures, P.O. Box 4960, Ft. Lauderdale, FL 33338. Prices include air fare, deluxe accommodations, breakfast and dinner daily (MAP), all hotel taxes and gratuities and standard package features.

There is one hitch, despite what the television ads say. You may be able to use plastic to buy your baubles in Bimini, but not your "bubbles." Sorry, no credit cards accepted! ❧

## AT REEF TO AUSTRALIA

On September 22, 1984 Dan Batchelder, resident photo pro at the Riding Rock Inn Resort on San Salvador Island in the Bahamas, will host a Photo Coaching Tour to Australia. Divers will board the TSM/V Reef Explorer in Cairns for a ten day live-aboard dive/photo vacation experience into the North Barrier Reef and the Coral Sea. There will be E-6 processing daily.

There will also be ten days of relaxation, Australian hospitality and diving, plus a tour to Sydney and the outback. The size of this group will be limited to maximize comfort. ❧

## AID DIVE

The 10th annual Aid Dive will take place February 11 at Elora Quarry, Ontario Canada. Sponsored by the Kitchener-Waterloo & District Underwater Association, it is expected to be the biggest Aid Dive ever.

This year the event will support the Waterloo Regional Heart Save. The goal of this program is to certify most of the area's population in CPR.

For more information write Box 322, Elmira, Ontario Canada N3B 2Z7. ❧

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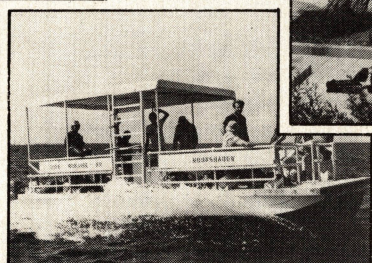
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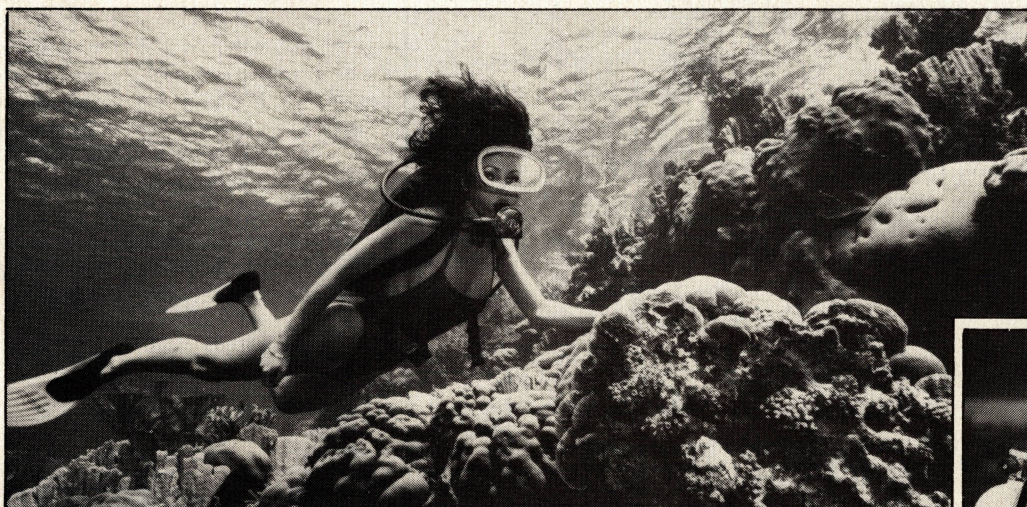


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## SOTO'S EXPANDS

Ronald Kipp, president and general manager of Bob Soto's Diving Ltd. in Grand Cayman, B.W.I. has announced the addition of a new Shore Diving Headquarters and NAUI/PADI training facility. Kipp revealed plans for an extensive shore diving and training location due south of Soto's present Lobster Pot headquarters. This will consist of a large, modern retail dive shop as well as a fully equipped training center. The training center will be outfitted with the latest in VTR and other training aids as well as have the unique tropical landscaping of an outside training location on George Town's south shore.

Kipp also announced the promotion of Pat Scharr-Mavec to manager of training. Scharr-Mavec was the retail manager. Replacing her will be Georgia Dolack of La Jolla, California, a former Soto employee. ❧

## OCEANQUEST/ROYAL PALMS

Using OceanQuest, Inc.'s toll-free dive travel reservations system, divers, tour operators, travel agents, dive stores and scuba clubs can confirm reservations at the Royal Palms Hotel including roundtrip air fare, from most major cities to Grand Cayman in the British West In-



photo Frank Shane/OceanQuest

dies. Situated in front of Cayman's most popular wreck, reef and wall diving, the hotel is a full service dive resort featuring Don Foster's Dive Grand Cayman. Special Unlimited diving packages are available for individuals and groups which include: choice of three dive boats, unlimited tank fills, accommodations and breakfast daily. ❧

## PETRAMALE/SEA FEVER

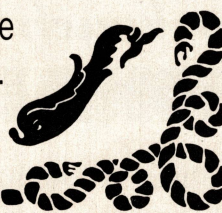
Captain Richard Petramale has joined the crew of the *Sea Fever*. He was formerly with Norwegian Caribbean Lines and before that, he owned the Coral Reef Scuba School in Key Largo, Florida.

Sea Fever Diving Cruises operates a live-aboard dive boat in the Bahamas with cruises departing Miami, Florida every Thursday. ❧

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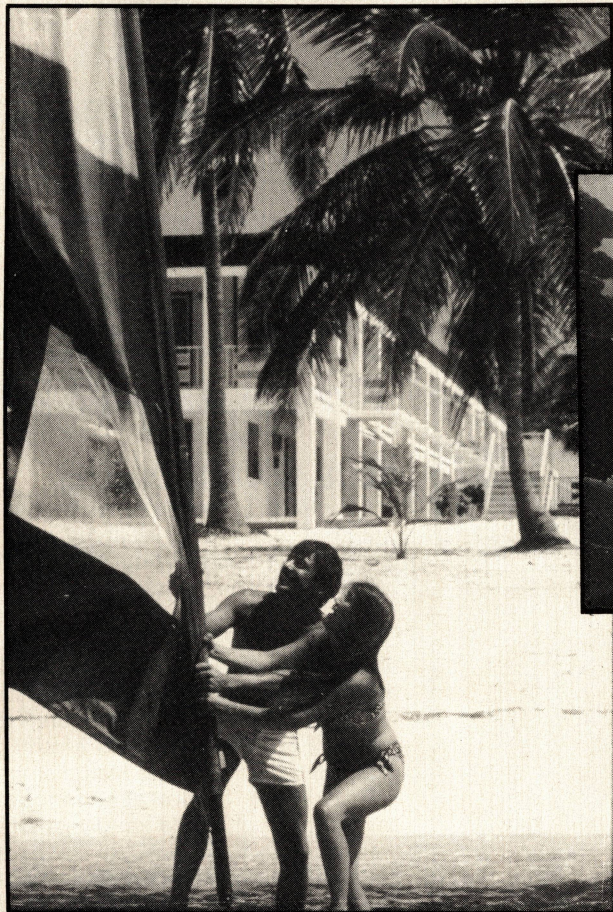


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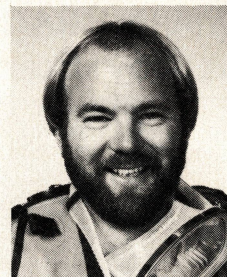
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## RIDING ROCK DIVEMASTER

Don Morrison has been appointed lead divemaster by Island Divers Ltd. at the Riding Rock Inn Resort, San Salvador, the Bahamas. Formerly from Los Angeles,



California, Morrison has been on the Island Divers staff for two years. A graduate of the PADI International College in San Diego, he has 14 years' experience in the diving industry.

Morrison's responsibilities will be to oversee the day-to-day operations and coordinate specialty programs for Riding Rock guests. 🌊

## BLUE WATER DIVERS

A new dive operation has opened on Grand Turk in the Turks and Caicos Islands. Called Blue Water Divers, it is backed by Iowa Undersea Adventures.

Blue Water Divers is headquartered at the same location as Pepcor Ltd. was, and uses the same 23 foot fiberglass dive boat. Changes include 20 new aluminum tanks and new rental gear. Clark Hawthorne, PADI instructor, and Mitch Rolling, PADI divemaster are staff members.

Blue Water Divers accommodates small groups of two to ten divers. There are two dives daily plus night dives and the small groups are ideal for U/W photographers. For more information and bookings, call 2432 (overseas route 160-105) or write: Blue Water Divers, Box 124, Grand Turk, Turks and Caicos Islands, B.W.I. 🌊

## SOUTH COVE PHOTO CENTER

South Cove Resort, Grand Cayman, B.W.I. has installed a new facility to assist the underwater photographer. Featuring daily E-6 processing; camera rentals from 110 through 35 mm; strobes and accessories; photo instruction; retail equipment sales; modeling instruction; commercial photography assistance; underwater portrait service; and custom slide shows, the new photo center will significantly expand the services available to the diver visiting South Cove. A Peter Hughes dive operation, it joins Spanish Cove, Anthony's Key Resort and Dive Bonaire as resorts offering a full service underwater photo center. 🌊

Susie Powell

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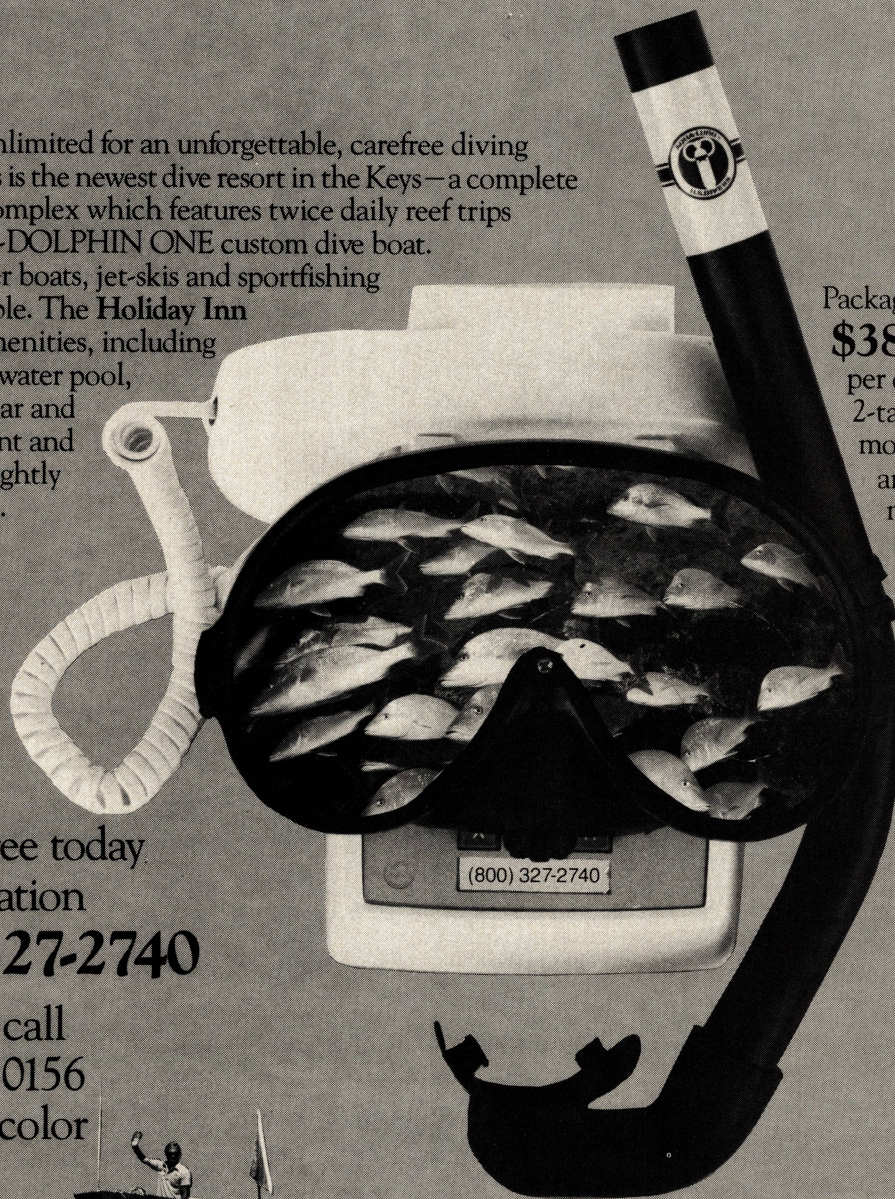
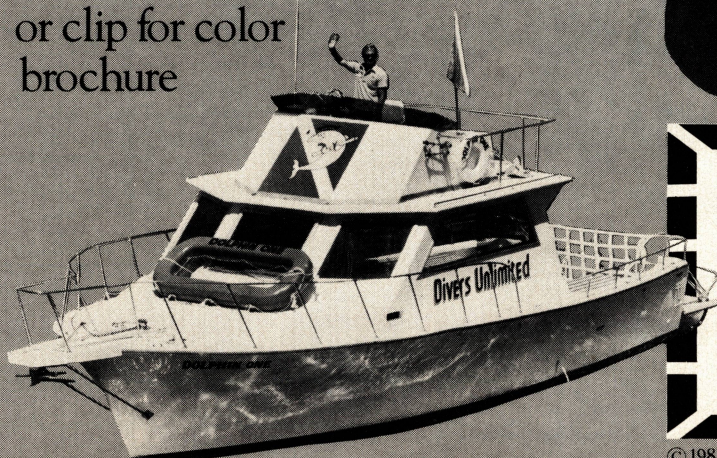
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## The Battle For AMERICA'S Sunken Treasure

BY HOWARD B. TOWER JR.

**T**he role of sport divers working with today's archaeologists is sensitive and controversial. Both groups tend to regard each other as enemies. Extreme positions taken by individuals of both sides have clouded the major issues and built a wall of animosity difficult to breach by clear thinking individuals in both camps.

Everyone reading this article who scuba dives for treasure, relics or fossils, amateur or professional, is a part of the controversy—and the solution. I have been working with professional archaeologists in South Carolina since April 1978 and have become involved with state archaeologists in Florida and Georgia during the last two years. These ongoing relationships have given me a view of the issues. I have been an avid underwater treasure hunter and amateur archaeologist for 17 years. Today every scuba diver must take an active interest in the welfare and direction of his or her hobby or profession.

The central issue at stake is the management of submerged archaeological resources. By definition this is any man-made object, fossil or bone over 50 years old. How these resources are managed is very important because the past and associated objects can never be replaced. However, everyday items lost during the 1980s will be archaeological resources during the 2080s.

Prior to 1960 there were very few people scuba diving for artifacts or treasure. Discoveries were usually made by accident—a sport diver stumbles on an ancient wreck site or a dredge spits up gold coins during construction activity.

Other discoveries were the result of deliberate searches conducted by universities, museums and historical societies. Professional archaeologists played an important role in such activities and were often called to evaluate accidental discoveries. Archaeologists published their activities in journals which were read by others in their profession but not sport divers. Theirs was a peaceful world.

During the 1960s the archaeological world was shaken. Advances in electronic technology made underwater metal detectors highly efficient and economical to own. Scuba diving became the adventure sport of the middle class and thousands of individuals began exploring national waters. In addition, books and magazines

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outlining archaeological techniques, research methods and treasure hunting skills were published and read.

Amateurs began locating hundreds of sites along rivers and professional treasure hunting organizations such as Eight Reale worked Spanish galleons. The immediate reaction of the archaeological community was to seek passage of restrictive antiquities laws which, in essence, declared the state owned everything submerged in public waters. Such laws were passed in Florida, Georgia, Texas and North Carolina. Legally, it became very difficult to search for anything.

However, during the 1970s responsible treasure divers began to challenge the constitutionality of these laws in court. And, they obtained stunning legal victories in Florida and Texas. In addition, the federal government sought to work with sport divers who demonstrated integrity. Today, well written antiquities laws (allowing private individuals to search for archaeological resources) exist in South Carolina, Michigan and Massachusetts. It should be noted that most states have no underwater antiquities laws.

If you believe as I do that sport divers have a public responsibility concerning submerged archaeological resources and can render valuable assistance to professional archaeologists, now is the time to act. Well written antiquities laws which allow the state a percentage of finds for museums and study but award the finder a substantial share of the objects in question will best manage our nation's archaeological resources. A concentrated effort on your part can make this a national policy and change or eliminate poor laws on the books. How can this be done?

First let's look at today's archaeological community, with whom you must eventually work. It is split into two groups. The largest segment is the purists. A purist wants nothing to do with amateur archaeologists or sport divers. They refer to such people as "looters." They are against, in principle, the issuance of salvage contracts or excavation permits to anyone outside the scientific community. An amateur with a salvage contract is called a "legal looter."

The purist does not believe a discoverer has any rights to what he has found. Any and all archaeological resources belong to the people. And everything recovered, no matter how insignificant, should be kept in storage or displayed. Purists are horrified at the thought of sport divers doing serious research. If it were possible, the purist would eliminate public access to metal detectors, scuba equipment, research materials, archaeological information and all publications dealing with relic or treasure diving. Such material and equipment could only be used by the elite group of "professionals."

Now let's look at the progressive group in the archaeological community. They realize there is no way to turn back the

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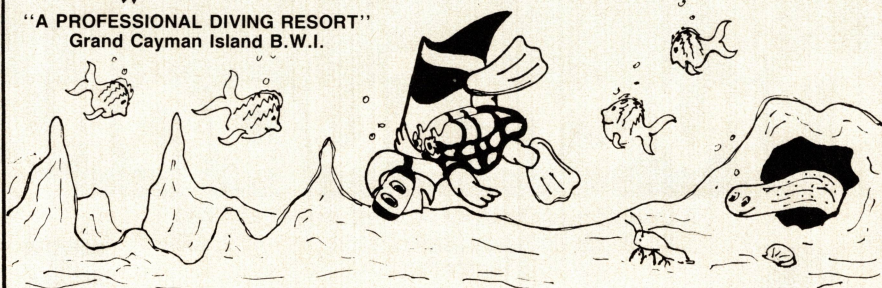
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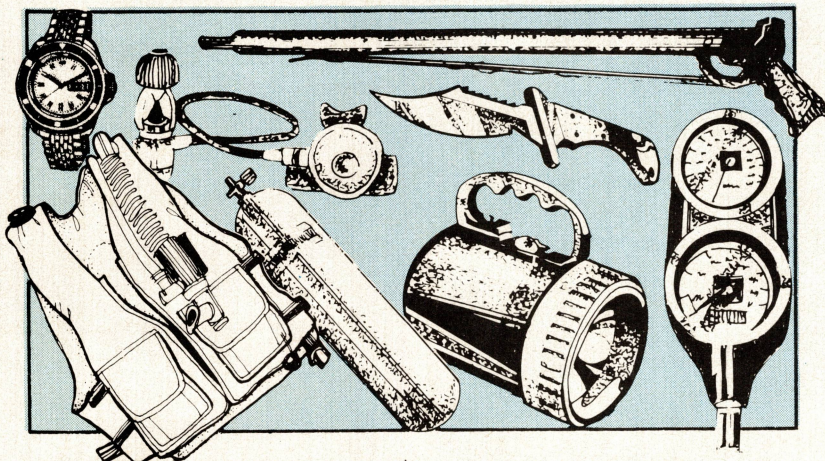


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## SPORT DIVERS/ ARCHAEOLOGISTS

clock—more than 2,000,000 individuals scuba dive, and research material is available to the general public. Logic dictates the need to educate and work with responsible sport divers. Every progressive archaeologist has his or her own idea as to how this can be done. In general, this segment of the archaeological community believes that more resources and data will be preserved if they work with divers under controlled contractual arrangements and supervise the excavation(s). They also believe that certain sites of extreme antiquity or great historical significance should be excavated by professionals. Thus a diver is more likely to get a salvage contract on a vessel sunk in the 1800s than a wreck lost before the Revolutionary War.

Archaeologists like to pick and choose the people with whom they work whenever possible. The more education and knowledge you or your group displays, relating to archaeological skills, the more likely they are to work with you. Today these professionals are a minority, but their numbers are growing.

I have worked with archaeologists of the above persuasion for the past five years and found this to be a rewarding experience. These professionals have educated me in a host of areas including artifact identification, preservation and excavation techniques. You are, in a sense, plugged into their world and have an opportunity to read professional journals and other materials not available to the general public. Over a period of time a sport diver can develop credibility with the archaeological community. Once you are recognized as a person of integrity and skill those archaeologists with whom you're working will provide assistance.

How do you form a partnership with the archaeological community in your area? My advice is to proceed slowly and with care. First find out if any historical societies, museums or universities need volunteer assistance on any projects or excavations. Offer your services in whatever capacity they are required. Every time you work in this manner you're building a foundation of trust and integrity and gaining first hand knowledge of archaeological skills.

Also learn if your state employs an archaeologist and find out what his responsibilities are. Your state representative can assist if you need help. Find out if your state has an antiquities law and obtain a copy. Read it carefully to determine what rights you have, provisions for licenses or permits and who has the authority to issue said documents. In many cases the state archaeologist has complete authority to grant excavation/sal-



vage permits at his discretion.

Educate yourself. Many archaeologists liken scuba divers to ignorant pigs rooting around in the aquatic boon docks destroying valuable historic information without knowing it. Unfortunately this is often true. We all know divers who fit this description. It is this image which purists flaunt before state legislators in relentless efforts to pass restrictive legislation against sport divers. Utilize your public library. Read books on archaeology—skills and techniques. Learn terminology. Study history relating to your area. This will enable you to find more sites.

Ok, you and your friends have located a site and there is an excellent chance that valuable artifacts or treasure may be recovered. Everyone agrees it would be wise to obtain a permit/contract with state authorities to prevent encroachment by other divers. Also, your group would have undisputed legal claim to all objects after division with the state. Your state antiquities law allows for such contracts.

Now, you must learn the disposition of state officials (archaeologists) toward such arrangements. Are they purists? Well, take it from me, they don't wear tags. Write or call the responsible official or agency and discuss your plans and ideas in general terms. Do not be specific about the site location. Your objective is to determine if the state (or federal government) is willing to work with you. If your first contact is by telephone, follow it up with a letter and vice versa. This will require great verbal/writing skill and tact. One reason to be general about site location is that sometimes unscrupulous employees may pirate it.

If there is a strong purist element in the agency it will stand out in the official reply you receive. The answer will always be no! And you will be advised that every effort will be made to prevent the issuance of a permit/license for your endeavor. In some instances you may be threatened with some sort of legal action for failing to disclose the precise location of the site or for finding it in the first place. Purists are often a volatile bunch. Should the door be slammed in your face the next recourse is to seek legal advice concerning other options.

If the state replies in a positive way, make arrangements to meet with the individuals in the proper agency and discuss project (and terms) in detail. You should be businesslike, serious and have a workable plan based on archaeological principles for site excavation. Do not adopt a know-it-all attitude. Let the professionals evaluate your proposal and stress that you are willing to accept their advice. The archaeologist will expect to guide you concerning cataloging methods, storage of artifacts and preservation techniques. You might have to experiment with several methods of excavation (salvage). Accept the fact your project will be closely monitored by the archaeologist or his assistant, especially during

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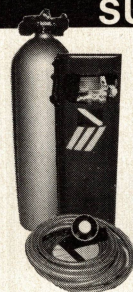
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## SPORT DIVERS/ ARCHAEOLOGISTS

the early stages. Remember the professional puts his reputation and career on the line by working with sport divers. And his peers, most of whom are purists, will criticize him for associating with amateur divers. Every successful project/partnership between professional archaeologists and sport divers enhances the image of the progressive archaeologist and the diving community.

What will be your reward for working with professional archaeologists? First you and your group will gain vast knowledge relating to identifying and dating artifacts or fossils. You will also develop a disciplined scientific approach to excavation. This knowledge and skill is transferable for future undertakings. The objects given to you as the result of the divisions will be worth much more than similar items with no site or historical association. Artifacts associated with a place, time or historical event which are fully documented will double or triple in market value. And remember those objects retained by the archaeologists will eventually be on display for your children and grandchildren in museums—a lasting monument to the project. If the professional is satisfied with your conduct on the project he will be willing to work with you in the future.

Across the country on state and federal levels a battle rages concerning management of the nation's submerged archaeological resources and the role of sport divers. Few people are aware of the serious efforts made by purists in legislatures to restrict or outlaw wreck or site diving by sport divers. The best way to secure your rights is through intelligently written legislation. True, bad laws can be nullified through court action, but the procedure is time consuming and *very costly*. Cobb Coin, a company headed by Mel Fisher, recently won a court battle with the State of Florida. It was an outstanding victory for treasure diving. The federal court ruled that admiralty salvage laws supersede the state antiquities law. And the state does not own everything submerged in its waters. Salvagers are free to search for submerged antiquities and lay claim to them in court. Fisher's organization spent \$118,000 in legal fees (which the court later said the state must pay) and the battle lasted two years. How many of you can afford such a thing?

The solution is to become active in the political process. Find out what's happening in your state legislature and Congress. Most activity affecting sport diving never reaches the papers. And the purist groups work under a cloak of secrecy. In Maryland and Virginia attempts were made to pass very restrictive legislation

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
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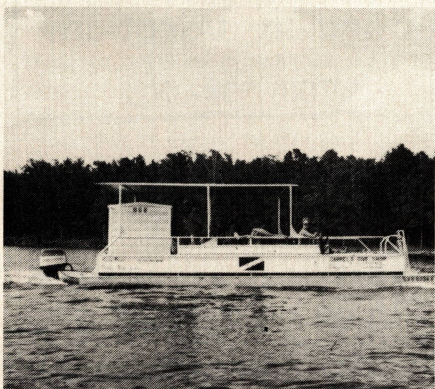
concerning underwater exploration. The bills were defeated by a last minute effort on the part of scuba divers. It is vital that you become aware of every bill affecting diving—its intent and supporters. Where do your representatives stand concerning sport diving activity?

From a political view there are strong arguments for public participation with state or federal agencies concerning the recovery of submerged archaeological resources. First, it's not a secret that all government agencies are strapped financially. And, the public is fed up with high taxes. Revenues (both state and federal) are designated for defense, police, highways, schools and welfare. There are few coins in the public coffers for archaeologists. In fact, many state archaeological projects are carried out with donations from the private sector. Can you imagine a politician saying, "Let's use public money to search for sunken treasure?" There is no way all the significant archaeological resources in the country can be recovered without responsible working relationships between professional archaeologists and the sport diving community. Submerged objects will deteriorate to nothing before state and federal agencies have the financial backing and manpower for their recovery.


So, let us work with the professional archaeologist when and where possible and learn from him. Study your state's antiquities laws. Work with diving organizations to write and pass good legislation. Responsible free enterprise will ensure conservation and the wise management of America's submerged archaeological resources. 

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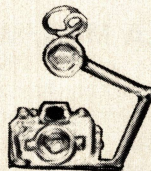
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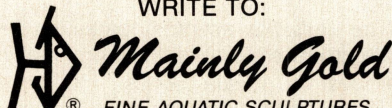
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In addition to offering an informed staff and large diving vessels to aid the diver, Pro Dive is sponsoring several photographic events. The Photo Rodeo and the Pro Dive Photo Contest are the largest events. Divers can submit materials one month prior to the October photo contest. The Photo Rodeo takes place in June.

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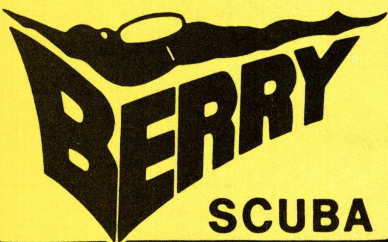
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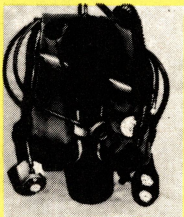
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## MEXICO DIVE CAMP

The Nature Study Center in Ixtapa-Zihuatanejo, Gro. Mexico is offering two-week camp-and-dive vacations throughout the coming year. Two week Camp de Mar vacations for certified divers will begin the third Saturday of each month. PADI Open Water Diving Certification Courses will begin the first Saturday of each month beginning January 7, 1984.

Camp de Mar vacations are personally supervised by Owen Lee, PADI instructor and founder-director of the Nature Study Center.

All Camp de Mar diving vacations feature daily diving excursions and at least one night dive, except for travel days. A certification course in U/W photography and free lectures on nature are optional.

Co-ed enrollment is limited to 20 people. Camp de Mar will accept two candidates for certification as assistant instructors with each open water course. Divers and students will live in an exotic, south-sea island setting and sleep in hammocks or swing-beds in palm-thatched ramadas by the sea. Two private bedrooms with bath are also available at extra cost.

Candidates must be at least 15 years old, be in good health and able to swim 100 yards without aids. Although it is not essential, it is recommended that they bring their own masks, snorkels, fins, BC and camp gear. The center will provide all other equipment needed.

## RIDING ROCK HOLDS PRICES

Riding Rock Inn Resort in the Bahamas has announced they will maintain 1983 package rates for 1984. Their 8 day/7 night Islander Special includes welcome rum punch on arrival at the island's airport, transfer to and from the hotel, two manager's rum punch parties, accommodations, breakfast-lunch-dinner daily, two underwater movies and slide show, freshwater swimming pool, tennis courts with free usage of rackets and all taxes, tips and gratuities at the resort.

Islander Special Diving package includes all the amenities of the Islander Special plus diver's package of up to three tank dives per day for six days plus night dives. On San Salvador Island, 385 miles southeast of Ft. Lauderdale, the resort offers 24 air-conditioned rooms and 10 villas/apartments.

## SEARCH

Safety of life at sea in the Bahamas has been increased significantly with the establishment of the first of a chain of marine VHF radio repeater stations. These bring emergency transmissions into a central listening point in Nassau, manned 24 hours.



This first station, at Chub Cay in the Berry Islands, has been set up by Bahamas Air-Sea Rescue Association (BAS-RA) at a cost of \$33,000, with funding provided through the U.S. based Search and Rescue Charitable Foundation (SEARCH). The receiving antenna is at the top of a 175 foot mast and, depending on the height of a distressed craft's antenna, it should receive signals reliably from at least 50 miles. This receiver is permanently tuned to Channel 22A and will not receive on Channel 16 nor be switchable. It is fully automatic, requiring no operator presence and is powered by 110v AC with battery backup.

The Nassau link receiver will be at either Nassau Harbour Control, or the Royal Bahamas Defence Force Base at Coral Harbour, New Providence, or both. Both stations already have a proper 24 hour radio watch for their own purposes. Calls received by this emergency link will thus be reliably answered at any time of the day or night and the BASRA duty officer alerted. Appropriate action can then be taken to help you.

Donations may be sent to SEARCH, Dept. VHF, 1300 S.E. 17th Street, Suite 210, Fort Lauderdale, FL 33316. >

## HOLBACK TO BELIZE

Central American dive resort owner, Chuck Hettle, has announced the appointment of Ron Holback as head of Belize Diving Services. Holback is a NAUI instructor from central California, and has worked the past four years teaching scuba in the Florida Keys and the United States Virgin Islands.

Belize Diving Services offers certification courses at all levels and hosts various marine research activities. Located on tiny, tropical Caye Caulker, the resort features unlimited dive sites along a largely unexplored virgin Caribbean reef. B.D.S has a fleet of three power boats, and the latest in rental gear. Holback and his staff transport travelers from the wild jungles of Belize out to the second largest barrier reef in the world. Complete rental repair services are available. >



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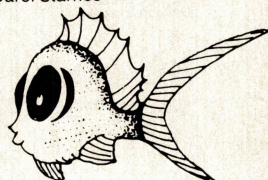
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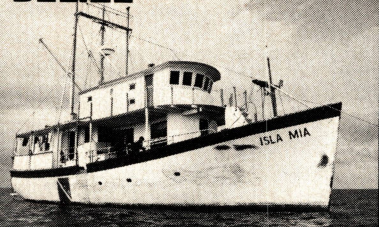


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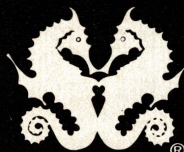
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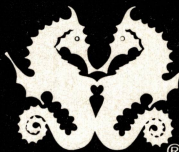
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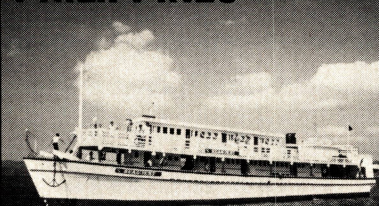


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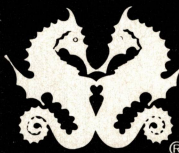
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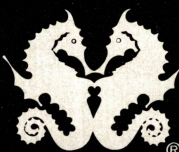
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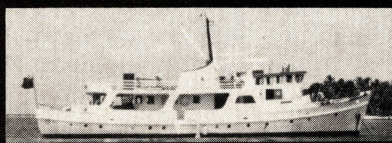
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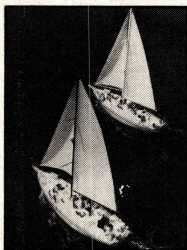
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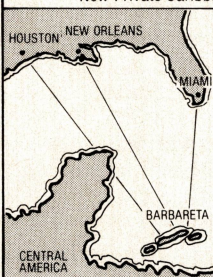
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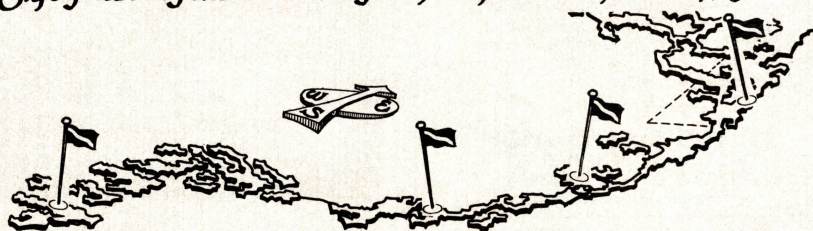
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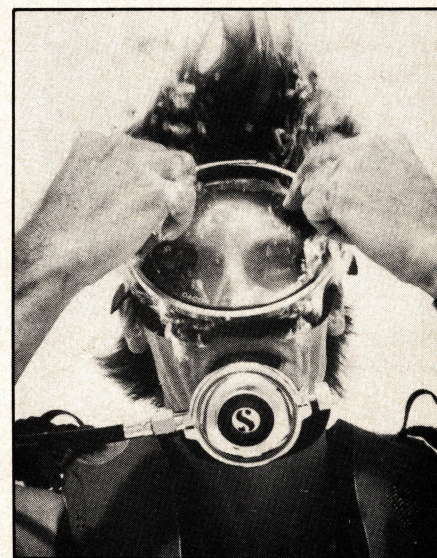
# HOW TO CLEAR YOUR MASK

TEXT AND PHOTOGRAPHY  
BY JERRY SCHNABEL

A lot of divers have forgotten how to clear their masks, according to a survey by instructors at UNEXSO (Underwater Explorers Society) in Freeport, Grand Bahama Island. All divers are required to take a pool check prior to diving at UNEXSO. This allows them to accomplish several things; check buoyancy and equalization as well as review basic scuba skills and hand signals. Thousands of divers per year take these pool checks and one thing has become clear—most have difficulty clearing their masks. Often they are simply out of practice, but sometimes they failed to learn this procedure during basic scuba class. Whatever the reason, anyone will have a more enjoyable dive with a clear mask.

Let us first examine what I refer to as the best method, now being used with 100 percent success by UNEXSO dive instructors in their introductory scuba classes. Then I'll review some of the more popular methods of mask clearing (both purge valve and non purge valve masks) used by divers today.

**The Best Method:** This works reliably well for all of us. While looking straight ahead, press in moderately on face plate with fingers of both hands just below the



**Best method**

upper mask rim while exhaling through the nose. This step can be repeated until all of the water is gone, looking up slightly to get the last remaining drops out. Because only enough pressure is applied to

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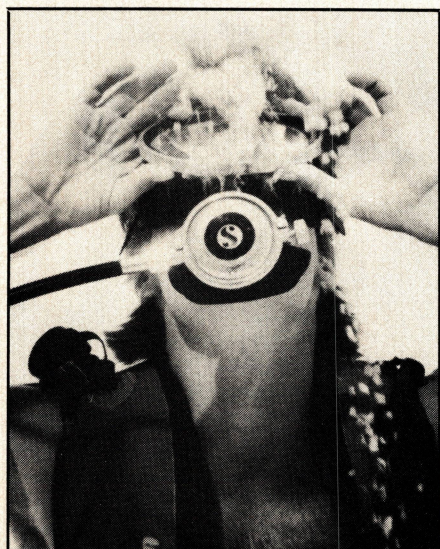


hold the mask in at the forehead and the seal against the face is not broken, no water will enter. Therefore, it is not critical to clear the mask entirely in one effort, because there will be no water rushing back in. This method also works well for the hooded diver, because it is easy to use with gloves on. Try it, you'll like it!

**Most Popular Method:** More divers are using this than any other. The diver looks up and exhales through the nose while lifting the bottom edge of the mask



Most popular, correct



Most popular, wrong.

away from the face. Usual mistakes here are: lifting your head up and back too far, pulling the mask too far from your face and not exhaling enough and continuously while the mask is away from your face. To clear the mask effectively with this method you should look up slightly, exhale through your nose while lifting the mask just away from your face along its bottom edge and continue exhaling until just after the mask is replaced.

**Second Most Popular Method:** Here the diver presses in on the upper mask rim with one hand while exhaling through the nose. Mistakes using this method in-

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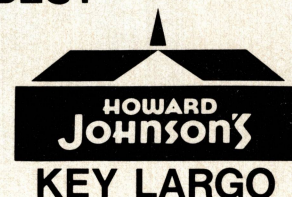
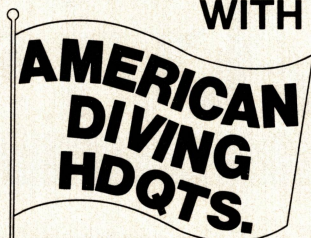
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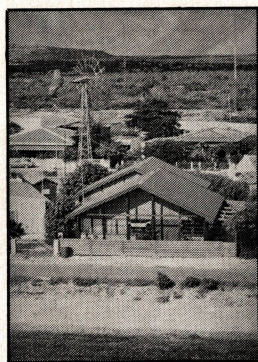
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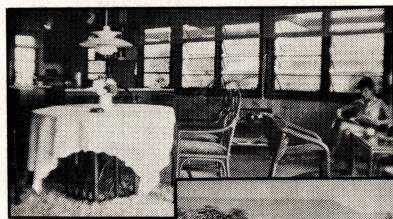
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## MASK CLEARING

clude pressing up instead of in on the upper mask rim, and pressing in too hard which lifts mask too far from your face. The correct procedure is to look up



Second most popular, correct.



Second most popular, wrong

slightly, exhale through your nose while pressing in moderately on the center point of the upper mask rim, continuing to exhale until just after releasing pressure.

**Purge Valve Method:** Most divers with purge valves grip the sides of the mask, then exhale through the nose while looking ahead. Quite often they are confused about whether to push on or pull out on the mask. Proper clearing technique with a purge valve is as follows: Press in on faceplate with fingers just above both eyes and exhale through the nose while looking down at a 45 degree angle until the mask is clear.

Having a clear mask will enhance your enjoyment of the dive. Some reasons that your mask might be leaking include: old mask with wrinkled edges; leaky purge



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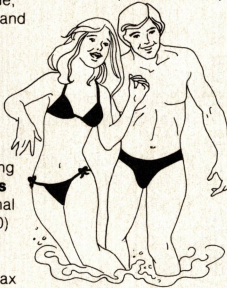
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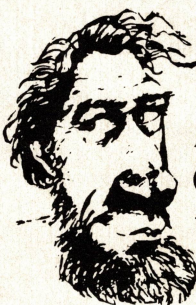
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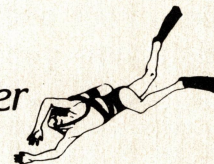
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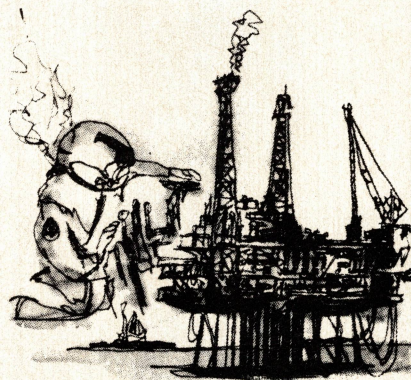
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(Continued from Page 58)

### NEW PROJECTS

PADI is not resting on past achievements. New projects are constantly being developed. For example, the agency has just introduced a new Diver Rescue Manual. It has been reviewed by the medical community and evaluated as state-of-the-art. PADI expects to introduce a dive-master leadership manual soon, as well as other books and products. Also, the *PADI Diver Manual* is currently being translated into Dutch, German, French, Italian, Swedish, and Norwegian (it's already in Japanese and Spanish).

### SUMMARY

In summary, PADI has found a way to incorporate the needs of the modern diver into its programs while maintaining high training standards. Active divers are safer divers, and PADI keeps divers active and hungry to learn more.

### MASK CLEARING

valve; hair in mask or thick mustache; edge of mask curled under; mask too loose or improper fit. If your mask fits well it should stay on your face without a head



Purge valve, correct.



Purge valve, wrong.

# FAMOUS MAKER HIGH QUALITY WET SUITS

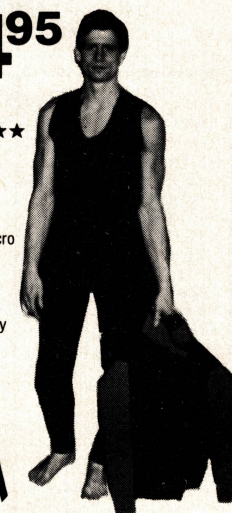
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### ★★ FEATURES ★★

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Dealer Inquiries Invited





strap when you inhale through your nose. Also, you should not have to squeeze the sides in closer to your face to make it fit. Lou Fead says, "It's not masks that leak, it's faces."

When putting your mask on either above or underwater hold it in one hand and the head strap in the other, then after brushing your hair back, place the mask against your face and pull the strap over your head. If the strap is too low it will be resting on the back of your neck, which will pull the mask down, breaking the seal. If the strap is too high on top of your head it will slide off completely. Your mask should have a split head strap; check it with your fingers when it is on to avoid twisting.

With the mask in place and after checking the strap, shuffle the mask up and down, right and left, until it feels properly seated on your face. By investing some time putting the mask on properly you will avoid leaks during the dive.

## TOUGHER AB LAW

Penalties for illegal trading in abalones will be substantially heavier than in the past as a result of legislation enacted last September in California.

As of January 1, 1984, the maximum fine for the purchase or sale of sport-caught abalones will be raised from \$500 to \$5,000 and the possible term of imprisonment from six months to a year. The offense will remain a misdemeanor.

The purpose of the legislation is to curtail illegal commercial traffic in abalones both in the south where they are bought and sold without proper permits and in the north where they can only be taken with a sport fishing license.

Department biologists cite the illegal trade as a major threat to the north coast abalone fishery.

The section on abalones was only one of several sections pertaining to marine species in an omnibus bill that combined AB 457 and AB 2137.

## PADI CERTIFICATIONS

According to recently released statistics, PADI is currently certifying more advanced than basic divers. Figures released for the first half of 1983 show advanced certifications leading basic 23,000 to 19,000. This is in stark contrast to a decade ago, when the vast majority of divers certified to just the basic level, and only a tiny handful went on to advanced levels.

Two factors have contributed heavily to this change. First, over 84 percent of all new PADI divers are now being certified at the open water level, instead of basic. Second, an increasing number of these open water divers are signing up for advanced and other continuing diver education courses. To date, PADI advanced open water certifications are up more than 35 percent over 1982.

# Phone Central Last!

**CENTRAL SKINDIVERS** is a full time, full line pro shop with an olympic size indoor pool. CENTRAL has been in business 31 years and our sales and service departments are familiar with every Scuba diving item made. If this months specials do not include what you're looking for, call for CENTRAL's discount price on any diving item.

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Lifetime Warrantee  
80 Cu. Ft. Aluminum  
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Plus Shipping  
50 CU. FT., 71.2 CU. FT. AND 94.6  
TANKS ALSO ON SALE FROM DACOR  
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### STABILIZING JACKET

Famous make  
Low Pressure Inflator  
Velcro Kam Pac  
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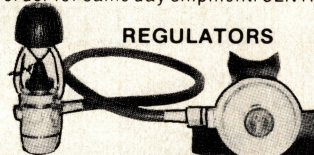
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### BOTTOM TIMER \$48

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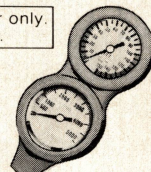
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Store prices may vary.

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Pressure & Depth  
Super Luminous  
Oil Filled

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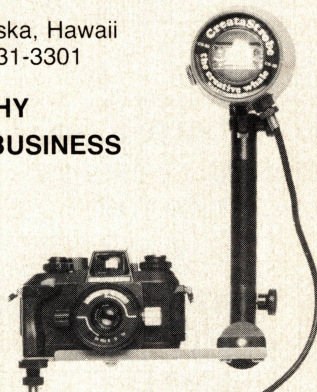
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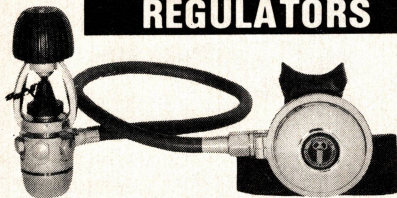


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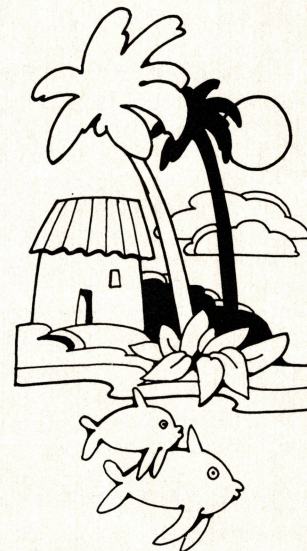
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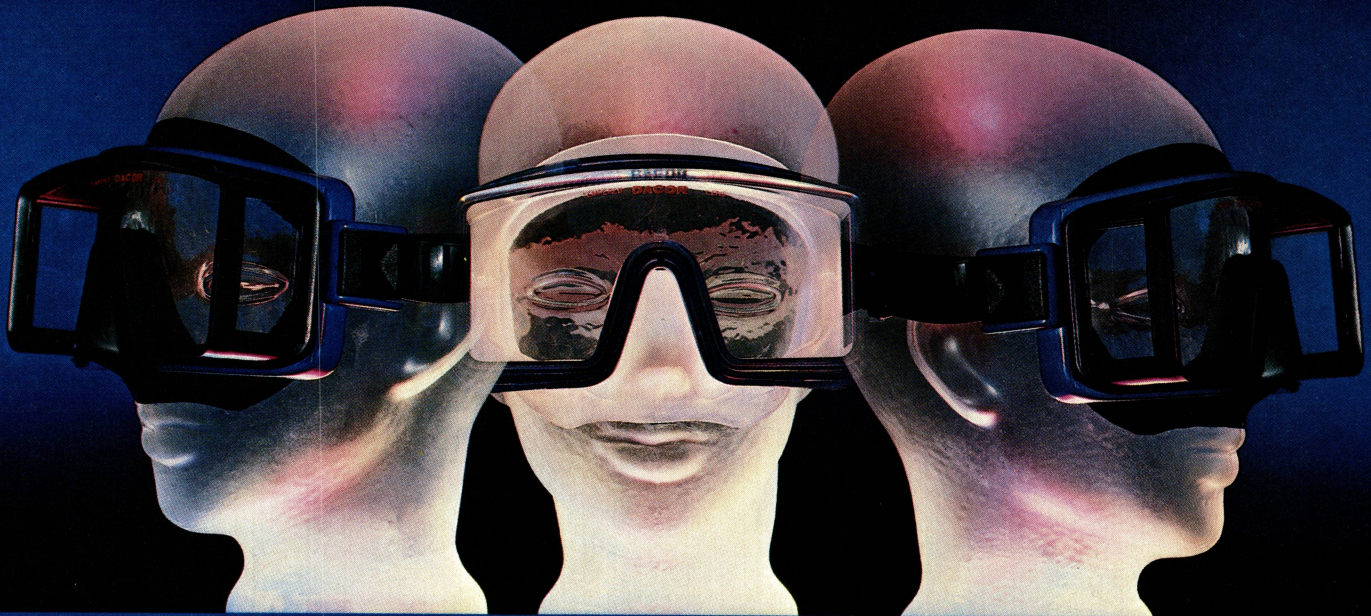
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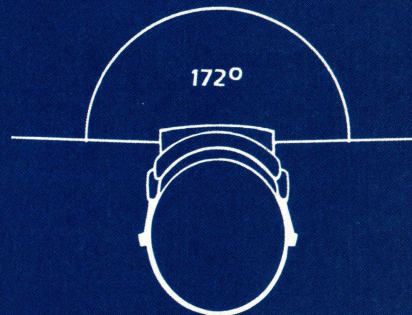


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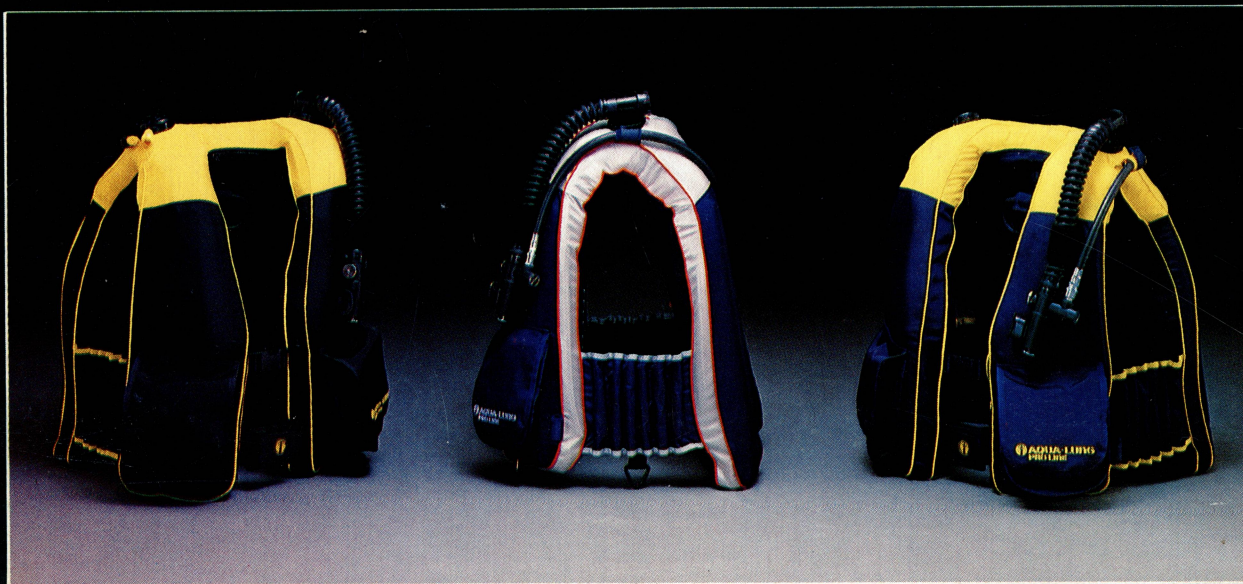
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